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Lucy Clementine Joyce Chamberlin

Transforming Consumption: design for engagement, meaning and action in a circular economy

Doctoral thesis

NTNU
Norwegian University of Science and Technology
Thesis for the Degree of
Philosophiae Doctor
Faculty of Architecture and Design
Department of Design

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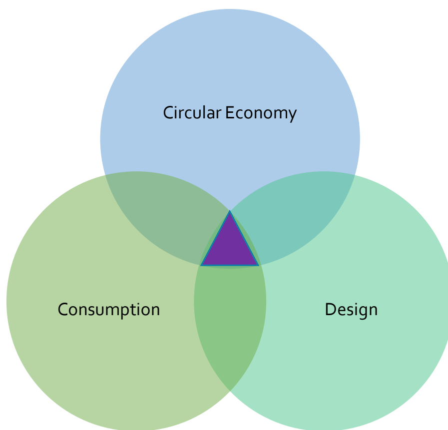

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‘The need to get out of the rational, credible, authorized tones of dishwasher instructional manuals cannot be overstated — this is not a moment to fix a machine, this is a moment to compose new cultures’ (Bateson, 2019)

Preface

This thesis is submitted to the Norwegian University of Science and Technology (NTNU) in partial fulfilment of the requirements for the degree of philosophiae doctor.

The doctoral work was undertaken at the Department of Design, NTNU, Trondheim, with Professor Casper Boks as the main supervisor and Dr Ida Nilstad Pettersen as co-supervisor.

The research was also conducted as part of the Circular European Economy Innovative Training Network which has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Sklodowska-Curie grant No. 721909. The funding body did not have any direct role in the present study.

Abstract

The Secretary General of the UN recently warned that humanity is waging a 'suicidal' war on nature and placed tackling climate change at the heart of the organisation's global mission (Rowlatt, 2020). Time for action is quickly running out, as it becomes increasingly likely that the Earth's temperature will increase beyond the critical 2°C limit and catastrophic fires, floods, pollution, desertification, ocean acidification, biodiversity collapse and all of the associated impacts become the new normal.

Against this backdrop, the concept of a circular economy has been popularised particularly amongst businesses and policymaking communities (Ellen MacArthur Foundation, 2020b; European Commission, 2020) over the last ten years as a way to interpret and implement sustainability whilst simultaneously creating economic benefits. Nevertheless, until recently the role of the consumer and the place of consumption within a circular economy has largely been neglected by research, despite its seminal positioning in many CE models. Likewise the role of design has been acknowledged as critical in creating new products and services for a circular economy, but has also been focused more on production (e.g. materials and business models) than consumption (e.g. people's interaction with their material surroundings or the culture and behaviours of consumers and how these are influenced). Furthermore, CE has not yet taken account of the limits of trying to decouple GDP growth from environmental impacts and the need to address overconsumption with a more sufficiency-based approach, particularly in more affluent global communities.

Behavioural economics and consumer culture research shows that consumers are not merely rational automatons with sovereign control but complex, unpredictable human entities; both consumption and design literature suggest that people usually act according to meaning and emotion rather than information and rationale, and that other priorities often supersede sustainable values or consumption intentions. However, such insights have been somewhat neglected by green marketeers hoping to engage with mainstream consumers and also by the subfield of sustainable consumption which has in the main relied upon psychological theories in researching and instigating behaviour change or engaging people with alternative consumption. Conventional marketing has succeeded in creating new needs and niches to be filled with stuff by equating products with happiness or fulfilment, but this equation has been shown to be flawed. Human wellbeing is a complex concept which cannot be sated by material objects – yet material objects are also more than just functional, and people's relationship with them is complex.

Design for Behaviour Change and Design for Sustainable Behaviour have made use of various cognitive but also social and practice theories to encourage behaviour or practice change for sustainability. The majority of focus however has been on individual approaches which either provide neutral information or 'nudge' the person into a new behaviour by controlling their context or choice architecture, with less attention paid to the meanings which trigger emotion and influence action. As cultural

intermediaries, designers along with other social communicators play a key role in creating and inculcating meaning and influencing fashion, taste and consumption. Although it has been accused of encouraging overconsumption, design may also be seen as having a responsibility and a role in encouraging or allowing actions that are in line with planetary boundaries as well as social wellbeing, engaging people with 'circular' (and sufficient) forms of consumption, and addressing the meaning of people's material possessions and the stories behind them.

This thesis therefore asks in what ways design can contribute to engaging people with new forms of consumption as part of a circular economy.

The papers in the thesis review different ways in which design can engage people with more circular consumption, using a variety of qualitative and design-based methodologies. Study 1 newly connects the emerging fields of circular economy and Design for Sustainable Behaviour research, and shows that frameworks such as the nine Dimensions of Behaviour Change or Design with Intent may provide useful indicators or strategies for engagement by businesses wishing to sell circular products or services to customers. A further paper in this study addresses various communications strategies in the context of a circular economy, particularly the use of visual rhetoric and storytelling to increase persuasiveness, prompt emotion or discussion and engage people throughout the customer journey. Study 2 researches the cultural phenomenon of the Marie Kondo decluttering method and places the consumer as designer, or rather re-designer, of their material home environments. Taking a practice-based approach to consumption, it explores the topic of sufficiency and the connection between wellbeing and sustainability. Results indicate that reflecting on what brings the participants joy, and indeed ritualising the process, can reorientate their relationship with and interpretations of consumption at different phases and even lead to significantly reduced acquisition. Study 3 takes the shape of a physical exhibition in which speculative and activist design approaches are used to explore futures of clothing in a localised context following an iterative process of prototyping and user research. Familiar scenarios of clothing combined with elements of storytelling, fun and interaction prompt visitors to imagine future shops in the town and then reflect on their own feelings towards what they wear and how this influences their actions. Once again, meaning emerges as a key ingredient of action.

By focusing on different theoretical or design perspectives through the three studies, it is found that behavioural, practice theory and cultural or future-focused approaches can all provide useful insights into how people may be engaged with consumption change. As the different studies make clear, whether through image, story, performance or material interaction, design has the capacity to engage imagination, prompt emotion and encourage reflection in ways that go beyond traditional modes of communication as fact-based transmission. Through such interventions, design thus has the ability to engage people more directly and to support consumers and users as well as businesses and the public sector to discover new meanings which lead to new actions as part of the consumption process, hereby playing a critical role in facilitating the transition to a circular economy.

Sammendrag

FNs generalsekretær advarte nylig om at menneskeheten fører en 'selvmordskrig' mot naturen, og plasserte det å takle klimaendringene i hjertet av organisasjonens globale oppdrag (Rowlatt, 2020). Tidsrommet for handling er begrenset, og det blir stadig mer sannsynlig at jordens temperatur vil øke utover den kritiske grensen på 2 ° C og at katastrofale branner, flommer, forurensning, ørkendannelse, havforsuring, tap av biologisk mangfold og tilhørende konsekvenser blir den nye normalen.

På bakgrunn av dette har konseptet sirkulærøkonomi (CE) blitt populært, spesielt blant bedrifter og politiske beslutningstakere (Ellen MacArthur Foundation, 2020b; EU-kommisjonen, 2020) de siste ti årene, som en måte å tolke og implementere bærekraft på, samtidig som det skaper økonomiske fordeler. Samtidig har forbrukerens rolle og forbrukets plass i en sirkulær økonomi inntil nylig i stor grad blitt neglisjert av forskningen, til tross for at forbrukere og forbruk er med i mange CE-modeller. Likeledes har design blitt anerkjent som kritisk for å skape nye produkter og tjenester for en sirkulær økonomi, men også her har man vært mer fokusert på produksjon (f.eks. materialer og forretningsmodeller) enn forbruk (f.eks. menneskers interaksjon med materielle omgivelser eller forbrukeres kultur og atferd og hvordan disse påvirkes). Videre har CE ennå ikke tatt hensyn til grensene for i hvilken grad det er mulig å koble BNP-vekst fra miljøpåvirkninger, og behovet for å håndtere overforbruk med en tilnærming basert på hva som er tilstrekkelig (sufficiency), særlig i mer velstående globale samfunn.

Atferdsøkonomi og forskning på forbrukerkultur viser at forbrukere ikke bare er rasjonelle automater med suveren kontroll, men komplekse, uforutsigbare menneskelige enheter; både forbruks- og designlitteratur antyder at mennesker vanligvis handler ut fra mening og følelser heller enn informasjon og økonomisk rasjonalitet, og at andre prioriteringer ofte rangerer høyere enn bærekraftrelaterte verdier eller forbruksintensjoner. Imidlertid har slik innsikt både blitt neglisjert av grønne markedsførere som håper å engasjere vanlige forbrukere, og av feltet bærekraftig forbruk som hovedsakelig har støttet seg på psykologiske teorier for å forske på og initiere atferdsendring eller få mennesker med på alternativt forbruk. Konvensjonell markedsføring har lykkes med å skape nye behov og nisjer, som kan fylles med ting ved å likestille produkter med lykke eller oppfyllelse, men denne ligningen har vist seg å være feil. Menneskelig velvære er et komplekst begrep og kan ikke oppnås kun ved hjelp av materielle gjenstander - men materielle objekter er også mer enn bare funksjonelle ting, og folks forhold til dem er komplekst.

Design for atferdsendring og design for bærekraftig atferd har tatt i bruk forskjellige kognitive, men også sosiale teorier og praksisteorier for å oppmuntre til visse typer atferd eller praksisendring for bærekraft. Det meste av fokuset har imidlertid vært på individuelt orienterte tilnærminger som enten gir nøytral informasjon eller 'dulter' personen inn i en ny atferd ved å kontrollere konteksten eller valgarkitekturen deres. Mindre oppmerksomhet har blitt gitt til meningsrelaterte aspekter som utløser følelser og påvirker handling. Som kulturformidlere spiller designere sammen med andre sosiale kommunikatorer en nøkkelrolle i å skape og innprente mening og påvirke mote, smak og forbruk. Selv om design er blitt beskyldt for å oppmuntre til overforbruk, kan

man også se det som at design har et ansvar og en rolle i å oppmuntre til eller tillate handlinger som er i tråd med planetariske grenser så vel som sosialt velvære, i å få mennesker med på 'sirkulære' (og tilstrekkelige) former av forbruk, og i å adressere betydningen av folks materielle eiendeler og historiene bak dem.

Denne avhandlingen spør derfor på hvilke måter design kan bidra til å få mennesker med på nye forbruksformer, som en del av en sirkulærøkonomi.

Artiklene i avhandlingen tar for seg ulike måter design kan involvere mennesker i mer sirkulært forbruk på, ved å bruke en rekke kvalitative og designbaserte metoder. Studie 1 knytter de fremvoksende feltene sirkulær økonomi og design for bærekraftig atferdsforskning, og viser at rammeverk som for eksempel de ni dimensjonene av atferdsendring eller «design med hensikt» kan bidra med nyttige indikatorer eller strategier for engasjement til bedrifter som ønsker å selge sirkulære produkter eller tjenester til sine kunder. En annen artikkel i denne studien ser på ulike kommunikasjonsstrategier i lys av en sirkulær økonomi, og spesielt bruken av visuell retorikk og historiefortelling for å øke overbevisningskraften, få frem følelser eller diskusjoner og holde mennesker engasjert gjennom hele kundereisen. Studie 2 tar for seg det kulturelle fenomenet Marie Kondo decluttering-metoden, og plasserer forbrukeren som designer, eller rettere sagt re-designer, av sine materielle hjemmemiljøer. Ved å ta en praksisbasert tilnærming til forbruk, utforskes temaet tilstrekkelighet og sammenhengen mellom velvære og bærekraft. Resultatene indikerer at det å reflektere over hva som gir glede, og det å faktisk ritualisere denne prosessen, kan reorientere deltakernes forhold til og fortolkning av forbruk i forskjellige faser, og til og med føre til betydelig reduksjon i anskaffelse av nye ting. Studie 3 tar form av en fysisk utstilling der spekulative og aktivistiske designtilnærminger brukes til å utforske fremtiden for klær og bekledning i lokal sammenheng etter en iterativ prosess med prototyping og brukerforskning. Kjente scenarier med klær kombinert med elementer fra historiefortelling, moro og interaksjon får besøkende til å forestille seg fremtidige butikker i byen, og deretter reflektere over sine egne følelser overfor det de har på seg og hvordan dette påvirker deres handlinger. Nok en gang fremstår mening som en nøkkelingrediens i folks handlinger.

Ved å fokusere på forskjellige teoretiske perspektiver eller designperspektiver gjennom de tre studiene, viser avhandlingen at atferd, praksisteori og kulturelle eller fremtidsfokuserte tilnærminger alle kan gi nyttig innsikt i hvordan mennesker kan engasjeres i forbruksendring. Som de forskjellige studiene viser, enten gjennom bilde, historie, praktisk utøvelse eller materiell interaksjon, har design muligheten til å stimulere forestillingsevne, følelser og oppmuntre til refleksjon på måter som går utover tradisjonelle kommunikasjonsformer som faktabasert overføring. Gjennom slike intervensjoner har design evnen til å engasjere mennesker mer direkte og dermed støtte forbrukere og brukere så vel som bedrifter og offentlig sektor i å oppdage nye typer mening som fører til nye handlinger som en del av forbruksprosessen, og kan dermed spille en kritisk rolle i å legge til rette for overgangen til en sirkulær økonomi.

Acknowledgements

The completion of a PhD is not an individual achievement, but rather the culmination of the efforts of an entire community. These are just some of the people I would like to thank and acknowledge for their part in helping me along the way – but of course there are many, many others!

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These PhD years have been some of the most joyful and also the most difficult and painful times of my life, but all of you have seen me through. To everyone here and the many others I have met along the way, thank you, from the bottom of my heart.

Personal Background and Research Interest

Although the research for this thesis took place at a design department and on the whole employs a design perspective, I came to this point from a multidisciplinary but not originally a design background. After studying English Literature at University College London as an undergraduate I worked in publishing and marketing before deciding to follow my passion for environmental issues and enrolling for a masters degree in Environmental Technology at Imperial College London, where I specialised in Business and the Environment and wrote a thesis about how businesses come to radically change direction and embrace sustainability (through crisis, imagination and reflection, as it happens). It was whilst at Imperial in 2012 that I came across the 'new' concept of a circular economy, and the following year went to work for the Ellen MacArthur Foundation on the Isle of Wight, a charity and research organisation which was pioneering this model and encouraging its uptake by businesses and governments. During my time at the Foundation I researched and wrote a report for the Welsh Government on circular economy opportunities in Wales (Chamberlin et al., 2013) and experienced first-hand the global surge of interest in this concept. Back in London between 2014 and 2016, I was exposed to the realities and role of design in perpetuating wasteful materials cycles through my job running The Great Recovery project from the RSA (Royal Society of Arts) (The Great Recovery, 2015). Over the two years I organised visits to many waste and recycling sites, conducted product tear-down and exploration workshops and cross-sector panel sessions, ran a design 'residency' programme for professional designers focusing on furniture waste streams and reuse, and helped to produce several films, including Survivor Sofa Story which highlighted the lack of network coordination and customer communication that resulted in thousands of tonnes of usable sofas ending up in landfill.

My personal experience of crossing the 'arts-science' divide to complete both a BA and MSc, together with my concerns about climate change, love of human-centred solutions and focus on 'what works' in practice, provided an unconventional entry to the field of design and this PhD study in particular. My interest in human impacts on the natural world goes back to childhood, having grown up in a vegetarian household and been introduced to concepts of conservation and responsibility from an early age (I remember convincing several schoolmates to become vegetarian after researching and presenting a holiday project on battery chicken farming aged 11!) It was concern about the incontrovertible evidence of climate change, together with perceived apathy on the part of society and a wish to spend my working life pursuing something which I felt passionate about myself and felt to be of wider importance which led me to follow my values, change direction and go back to university to study for the masters. Equipped with a more scientific understanding of the issues facing humanity and the ecosystems it depends on, together with the vital need to adopt more sustainable ways of living and interacting, my interest in the circular economy grew out of the perception that this provided a more realistic model for change than had heretofore been presented to businesses and societies currently 'locked in' to linear and growth-centred models. An awareness of the central role of design grew out of my work on a circular economy, both at the Ellen MacArthur Foundation and more notably at The Great Recovery, where I interacted with professional designers and ran hands-on

workshops, learned the often-cited claim that 80% of a product's environmental impact is determined at the design phase and was introduced to the concept of design for behaviour change or social transition. To some extent this growing affinity for design also returned me to fundamental questions of human behaviour and psychology which had originally led me to study literature and believe in the power of the humanities to cultivate social values and empathy (Nussbaum, 1998).

Circ€uit Marie Skłodowska Curie Innovative Training Network

This PhD project was one of a network of 15 each tackling different aspects of a circular economy. The work was completed with funding from and under the auspices of the Circular European Economy Innovative Training Network, Circ€uit, an action funded by the European Commission under the Horizon 2020 Marie Skłodowska Curie Action 2016 (Grant Agreement number 721909). The goal of the programme was to develop future leaders in research, policy and business through an interdisciplinary approach focused on circular economy, and to establish a network of educated young professionals that understand the interactions between societal, economic and environmental aspects of the field and can act accordingly. The transition towards a circular economy is a core strategy of the European Parliament and of many individual European countries, with a focus on sustainable growth, resource efficiency and job creation. In working towards this, the research of the network explored links between product and service design, supply chain management, manufacturing technology, product and service use, product treatment and end-of-life and business models and strategies.

This PhD, ESR 9, was part of a work package addressing users (i.e. consumers, users, governments or other stakeholders and interest organisations) by asking the core question, *'How can we stimulate, facilitate and motivate circular consumption by understanding the involved behavioural and practice aspects?'* It included consideration of psychological, social and behavioural practices of end users and others, circular value propositions, awareness creation, user groups and product-service development. ESR 9 focused on the communication of circular economy-based value propositions, and the following research was conducted with that brief in mind. It was undertaken at the Department of Design in NTNU, Trondheim, Norway.

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List of Abbreviations

CE – circular economy

DfSB – Design for Sustainable Behaviour

SPT – Social Practice Theory

SPSS – Sustainable Product Service Systems

DfS – Design for Sustainability

DfBC – Design for Behaviour Change

DEFRA – UK Government Department for Environment, Food and Rural Affairs

DDI – Design-Driven Innovation

IPCC – Intergovernmental Panel on Climate Change

DSP – Dominant Social Paradigm

MLP – Multi-Level Perspective

Appended Publications

Study 1a

Journal papers *(Papers 1 and 2)*

Chamberlin, L., Boks, C., Marketing Approaches for a Circular Economy: Using Design Frameworks to Interpret Online Communications. Sustainability 2018, 10, 2070. DOI: 10.3390/su10062070

Daae, J., Chamberlin, L., Boks, C., Dimensions of Behaviour Change in the context of Designing for a Circular Economy. The Design Journal 2018, 21:4, 521-541, DOI: 10.1080/14606925.2018.1468003

Study 1b

Conference paper *(Paper 3)*

Chamberlin, L., Working paper: Designing communications for a circular economy: information design and narratives for social change. In proceedings of ISDSRS, The 24th International Sustainable Development Research Society Conference, Messina, Sicily, June 2018

Study 2

Journal paper *(Paper 4)*

Chamberlin, L., Callmer, Å., Spark Joy and slow consumption: an empirical study of the impact of the KonMari method on acquisition and wellbeing, The Journal of Sustainability Research 2020 special issue, Resisting Throwaway Culture—The Role of Consumers in Achieving Sustainable Product Lifetimes, accepted

Study 3

Conference paper *(Paper 5)*

Chamberlin, L., Finsveen Liven, R., and Boks, C., The Future Consumer: How can design spark people's imaginations and engage them in meaning making around circular economies for clothing? In proceedings of EcoDesign, the 11th International Symposium on environmentally conscious design and inverse manufacturing in Yokohama, Japan, November 2019

Other publications

Conference papers

1. Chamberlin, L., Boks, C., Marketing approaches for a circular economy: using design frameworks to interpret online communications. In proceedings of ERSCP, the 18th European Roundtable for Sustainable Consumption and Production, Skiathos, Greece, October 2017

2. Daae, J., Chamberlin, L., Boks, C., Dimensions of Behaviour Change in the context of designing for a circular economy. In proceedings of PLATE, the 2nd Product Lifetimes and the Environment Conference, Delft, November 2017

3. Chamberlin, L., Callmer, Å., Spark Joy and Slow Acquisition: The KonMari Method and its impact on moments of consumption. In proceedings of PLATE, the 3rd Product Lifetimes and the Environment Conference, Berlin, Germany, September 2019

Book chapter

Camacho-Otero, J., Tunn, V.S.C., Chamberlin, L., Boks, C. Consumers in the Circular Economy, chapter 7 in Brandao, M., Lazarevic, D., Finnveden, G., (eds), Handbook of the Circular Economy, Edward Elgar Publishing 2020, ISBN 978 1 78897 271 0

Chapter 1: Introduction

In spite of scientists' warnings over the last 50 years, and before that the call of artists and mavericks for a human existence more in tune with nature[1], anthropogenic climate change continues to accelerate and to threaten the long-term survival of the species that set it in motion. Environmental journalist and researcher George Monbiot has warned that the Earth is now in a 'death spiral' (Monbiot, 2018), and that only radical action can avert catastrophic ecosystem breakdown and associated societal collapse. There have been many initiatives by charities, governments and the UN to mitigate and respond to the exigencies caused by environmental exploitation and associated social impacts, and the Paris Agreement in 2015 provided some hope of multilateral collaboration in keeping global temperature rise below 2C (UNFCCC, 2017). Likewise there have been calls for and experiments with sustainable production and consumption, supply chain transparency, carbon offsetting, green growth, ecodesign, ecolabelling, recycling and industrial ecology, and many related ideas and projects by public and private sector groups. Despite many such valiant efforts however, and growing clamours for more radical transformation, climate crises continue to accelerate whilst the economic and social structures that allow them remain largely unchanged.

One recent concept that brings together several disparate areas of research is the circular economy (CE), an approach which attempts to replace linear, 'take-make-waste' processes with regenerative design that is compatible with natural systems. Its apparent promises of decoupling economic growth from environmental impacts and providing value from waste have captured the interest of the global business community in the 2010s in a way that sustainability arguably failed to do in the 1990s and 2000s, and accordingly have led to new strategies and actions at the highest levels of political power (European Commission, 2020). Nevertheless, whilst circular business models, design and waste practices and resource flows are explored in some detail in a growing body of academic and other literature, the question of the consumer's role in this new concept of CE remains underdeveloped – though some recent publications such as my colleague's thesis (Camacho Otero, 2020) are now starting to address this lack. Existing research into the sociology of consumption and sustainable consumption, for example, has not yet been rigorously applied to consumer scenarios in a CE, and nor has CE been substantially integrated into these literatures. This despite consumption being a major cause of environmental impacts through resource use and greenhouse gas emissions at a global scale (Ivanova, 2016). But consumption is not easily categorised and consumers are not easily controlled or managed in the same way as, for instance, a material stream or product design might be. They are human entities with conflicting priorities who often act according to emotion rather than rationality and whose behaviour is difficult to predict. In order to create a circular economy which acknowledges the realities and consumption patterns of the people it needs to engage, it is therefore important for researchers, policymakers, businesspeople, designers and others to understand work that has

[1] E.g. Thoreau, Wordsworth, Ruskin, Morris

already been conducted in this field, particularly in terms of sustainable consumption and approaches to societal change.

Design is one field which, particularly through its work on behavioural or practice change, attempts to understand the nuances of human activity and indeed to allow for normative perspectives particularly with regards to the need for sustainable societal transformation in response to a range of issues. Moreover it comprises a diverse literature that allows for experimentation, embraces multi-disciplinary approaches and provides many tools for exploring, analysing and shaping both tangible materials and intangible behaviours. It acknowledges and even celebrates its cultural role as an influencer on society, with the potential to impact meaning and action as well as physical form. Nevertheless, the role of such cultural approaches in defining and shifting human activities as part of the transition towards a CE has not yet been properly explored and is a motivation for this PhD research. The thesis examines ways in which people can be engaged with new forms of consumption, using insights from design and other fields which comment on human interaction with the material world and how such interactions can change.

In addressing these issues, the research aims to explore the intersection of circular economy, consumption and design perspectives, providing an overview of previous relevant research from these fields and summarising some of the gaps or missing pieces. It develops an understanding of some of the main models of change that have been used in the fields of sustainable consumption and sustainable design, and the challenges and lessons that these bring, and also explores the potential for different design approaches to engage consumers or users with new forms of consumption as part of a circular economy. Finally it aims to provide insights and suggest strategies for designers, academics, citizen or consumer groups, CE-focused businesses and policymakers when it comes to engaging people with change as part of a future-focused CE. In bringing together the CE concept with approaches from the social sciences, specifically consumption and design perspectives, it represents an interdisciplinary and to some extent transdisciplinary exploration (Sakao & Brambila-Macias, 2018) that integrates these different approaches in order to address the issue of consumption in a circular economy and to constitute a new contribution to academic research.

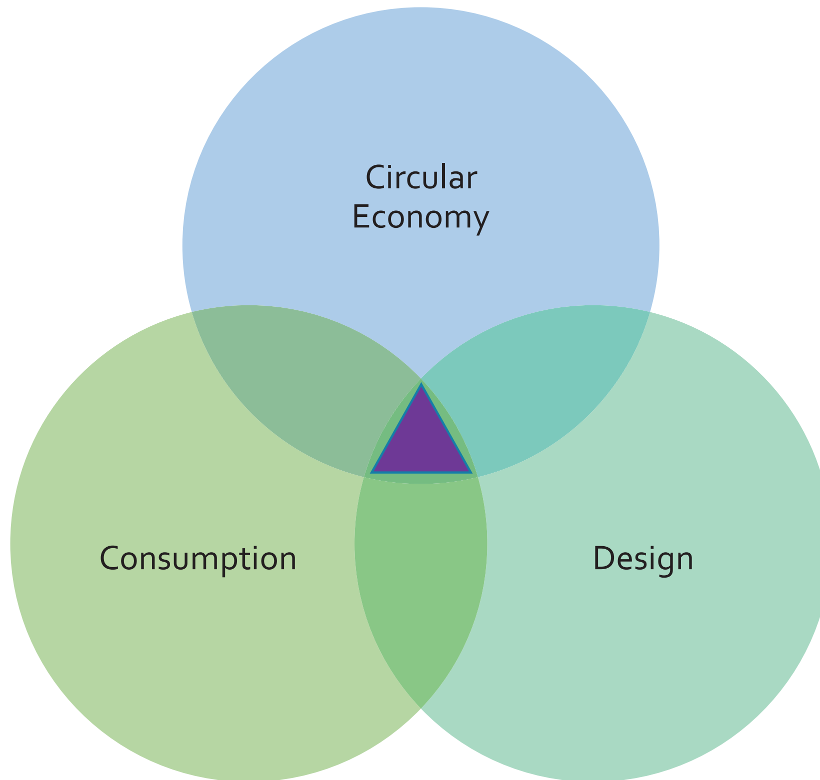


FIGURE 1: THE RESEARCH TAKES PLACE AT THE INTERSECTION OF CIRCULAR ECONOMY, CONSUMPTION AND DESIGN.

Research Question

Such being the case, the overarching research question for the thesis is,

In what ways can design contribute to engaging people with new forms of consumption as part of a circular economy?

Scope

In addressing the issue of consumption change as part of a circular economy and the role of design as an agent or tool for change, most of the literature referenced is from these three areas, although the subject matter by its nature is multi-disciplinary, and as a result the scope is not strictly limited. In geographical terms the research is based in a Northern European context and was mostly conducted in Norway between 2017 and 2020, specifically from NTNU in Trondheim where I was based for three years. Levels of consumption and affluence are highest in so-called developed countries such as those of Europe and the USA and as mentioned the circular economy is now an important part of the EU's future-focused policymaking; thus Europe is an obvious choice for studying the transformation of consumption as necessitated by a CE. The three studies in the thesis each take a different perspective on design and the designer and use different scopes to approach the subject of consumers in a circular economy. The first is desk-based and exploratory and focuses on the marketing and web communications of some companies based in the UK and Europe which are trying to

provide CE products or services. The second is empirical and gathers interview and survey responses from the UK and Sweden. The third is practice-based and involved developing a physical exhibition focused on and in the locality of Trondheim. The UK was used as a source of data for the first and second studies, since I am from the UK and felt that it was advantageous to share a native language and culture with the subjects or respondents.

The studies were conducted consecutively, with a progressive expansion of perspective from behaviour to practice to culture or system, and Study 3 incorporating some elements (storytelling, visual rhetoric, material interaction, reflection) from studies 1 and 2. However, the studies are not linked in any other way but rather represent a diversity of approaches and methods afforded by design and culture in tackling the issues of consumption in a CE. This broad scope provided the opportunity to explore contrasting frameworks and methodologies in a way that fits with such a new field of investigation, and the research thus follows a 'meta' approach that demonstrates possibilities for action and contributes to an ongoing discussion. It meant that insights and ideas were generated rather than fully developed design solutions or conclusive policy inputs, and as such the results provide a fertile ground for further explorations in these areas.

It should further be noted that the term 'engagement' is often used instead of 'communication' in this thesis in the context of consumption change. This reflects the fact that 'communication' is often used to describe one-way transmission of information and does not always account for the role of the recipient in interpreting or acting on the communication. 'Engagement' however implies that someone or something is being engaged with, that the process of change is to some extent reciprocal rather than one-directional, and that an understanding of context or audience is also important. This aspect is elaborated further in Chapter 2.3.

In addressing topics of behavioural change, consumption and design of course the issue of digital communication and manipulation is both very current and very relevant, particularly following the Cambridge Analytica scandal and popular documentaries such as Netflix's The Social Dilemma (2020); nevertheless, it was not possible to include this huge research area in the scope of this thesis. In a similar way, although the field of marketing and behavioural studies has much to say on the topic of consumer influence (and the role of marketing is acknowledged in Chapter 4, Study 1), a deeper analysis also lies outside scope, since the studies and topics discussed here are mostly rooted in the field of design. Finally, since the 2020 Coronavirus pandemic occurred after the majority of research for the PhD had been completed, it has not been included for consideration in the thesis, though it should be acknowledged that to some extent the dramatic events of the past year have forced a previously unthinkable level of behavioural change on society and made it somewhat easier for people to imagine some of the shifts that may be necessary in transitioning to a more sustainable world.

Chapter 2: A preliminary discussion of Circular economy, Consumption and Design

Before diving directly into the studies themselves, I will explore the current literature that connects these topics by making a preliminary inquiry that asks:

What is the salient state of research in the areas of circular economy, consumption and design and how do these relate to each other?

In order to answer this question, this background chapter comprises an initial discussion of the three focal areas of the thesis: circular economy, consumption and design. It discusses these in turn, aiming to provide an introduction and overview of relevant research from these fields, see what is missing and lay the groundwork for the studies that follow.

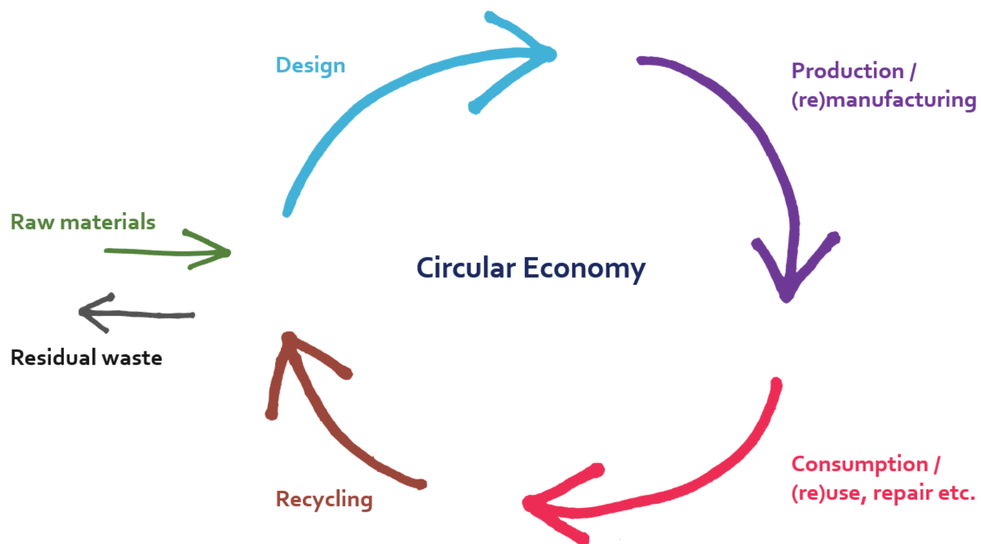


FIGURE 2: DESIGN AND CONSUMPTION ARE BOTH CRITICAL PARTS OF A CIRCULAR ECONOMY, BUT DESIGN HAS TRADITIONALLY BEEN USED IN THE CONTEXT OF TRANSFORMING RAW MATERIALS INTO PRODUCTS RATHER THAN INFLUENCING CONSUMPTION DIRECTLY

2.1 Circular economy: imperatives and gaps

Anthropogenic climate breakdown and the imperative for change

'Climate change is the defining issue of our time and we are at a defining moment' (United Nations, 2020)

From rising sea levels to devastating forest fires, mass extinctions and biodiversity loss to air pollution, soil erosion and ocean acidification, the planet that sustains human life is under unprecedented threat from the activities of those very same humans. These planetary support systems are complex and interconnected moreover, fluctuations in one can lead to perturbations in others which then trigger tipping points and negative feedback loops, and the problems posed for both ecosystems and

societies are said to be 'wicked' or even 'super wicked' (Levin et al., 2012). As has been shown by many scientists and other commentators, population growth, overconsumption and poverty are linked to the decimation of forests, fisheries and soils, which, exacerbated by climate change, can jeopardise food and financial security and create political unrest (Capra & Luisi, 2015b). Capra and Luisi's map (see figure 3) demonstrates the complexity and interconnectedness of some of these issues, showing how the crisis of ecological and human survival is also a crisis of capitalist or market fundamentalist worldviews and unlimited growth models which contradict the long-term survival of environmental ecosystems on a finite planet.

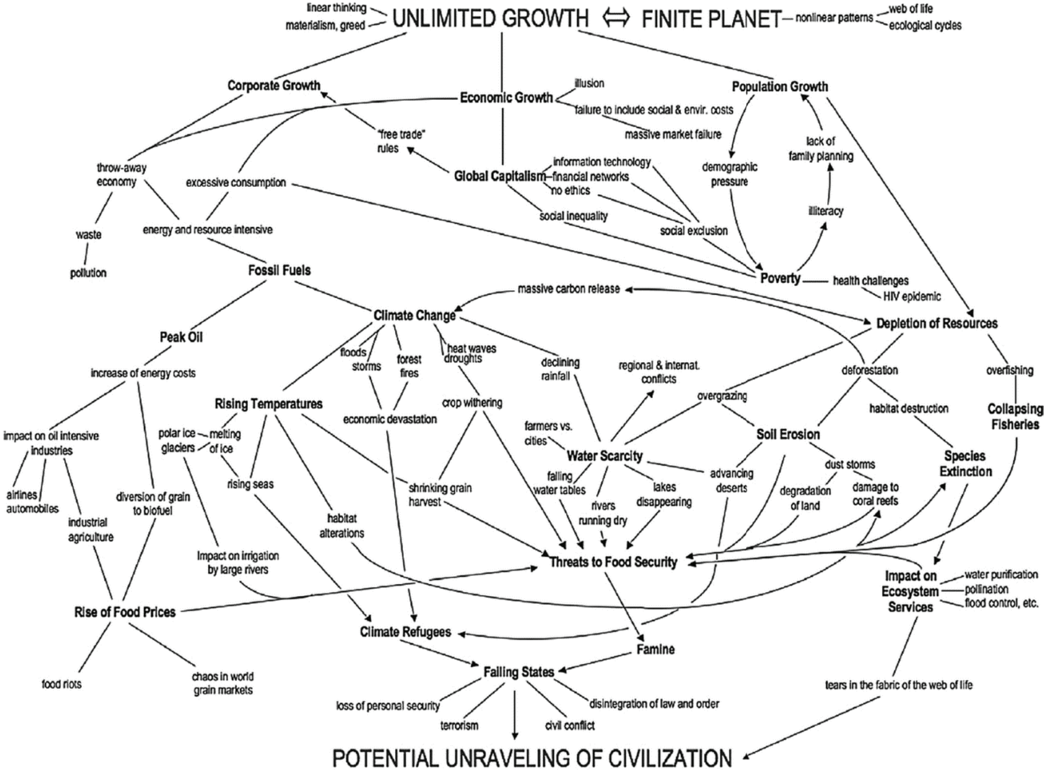


Figure 3: Capra and Luisi's conceptualisation of planetary interconnections and the threat of unlimited growth on a finite planet (Capra & Luisi, 2015b, p. 364)

The dominant global and social paradigm is anthropocentric (Kilbourne et al., 1997), focused on constant economic growth through the ever-increasing throughput of material and energy made possible by production and consumption (Ede, 2016; Princen, 2005). Factories, markets, farms and laboratories have successfully increased this throughput over many decades, as net biocapacity has been imported by certain countries from others (usually global south to global north) and the universal dogma of efficiency has been largely unquestioned in its mission of more, faster, cheaper. A so-called 'weak sustainability' approach in which environmental problems can be solved by more technology and more growth and natural capital can simply be

substituted by human capital has largely dominated corporate and political discourse: in such a scenario there is always another frontier to exploit, natural resources can be substituted by manmade solutions and environmental protection only needs to be considered when resource needs are threatened (Princen, 2005).

However, these approaches are using up natural reserves, causing overshoot, eating into planetary stocks rather than just relying on flows (Webster, 2017) and weakening the ability of ecosystems to regenerate (Ede, 2016). Donella Meadows and the Club of Rome for instance first warned of the dangers of exponential economic growth on a planet of finite resources in 1972, but the information effected little change in the activities of global economies; 30 years later the same authors repeated their warnings of impending overshoot and collapse, again reiterating the links between human development and environmental degradation (DH Meadows et al., 2004). Even before this, figures such as Rachel Carson and many other scientists and activists have tried to make clear the links between human and environmental survival and sustainability, but in spite of a surge of interest and activism in the 1960s and 1970s following the publication of Silent Spring, and the role of politicians such as Kennedy or Thatcher in respectively restricting DDT or regulating ozone-damaging CFCs, there has been scarce political will and a devastating lack of global urgency in this regard. Arguably it is only within the past five years, with the Paris Agreement on Climate Change, David Attenborough's ground-breaking Blue Planet II series and the associated upswell of concern about plastic pollution, not to mention the work of activists such as Greta Thunberg and Extinction Rebellion, that public attention and political will in several countries has been galvanised on these issues.

More recent models such as the Stockholm Resilience Centre's Nine Planetary Boundaries (Rockström et al., 2009) have shown the relationships between human activity, natural resources and climate change in even starker terms. The planetary boundaries framework (Steffen et al., 2015) identifies a 'safe operating space' for humanity in nine different parameters, and suggests that many of these are already heading towards zones of uncertainty and risk in many of the systems that support life on Earth. Transitioning to new ways of being and doing that sustain rather than jeopardise planetary support systems has thus far proved an incommensurable challenge, and until the recent Coronavirus pandemic even imagining let alone effecting such radical changes in social and economic structures has proven an almost impossible task, with stark warnings from scientists and mounting evidence of climate breakdown failing to galvanise unified multilateral action.

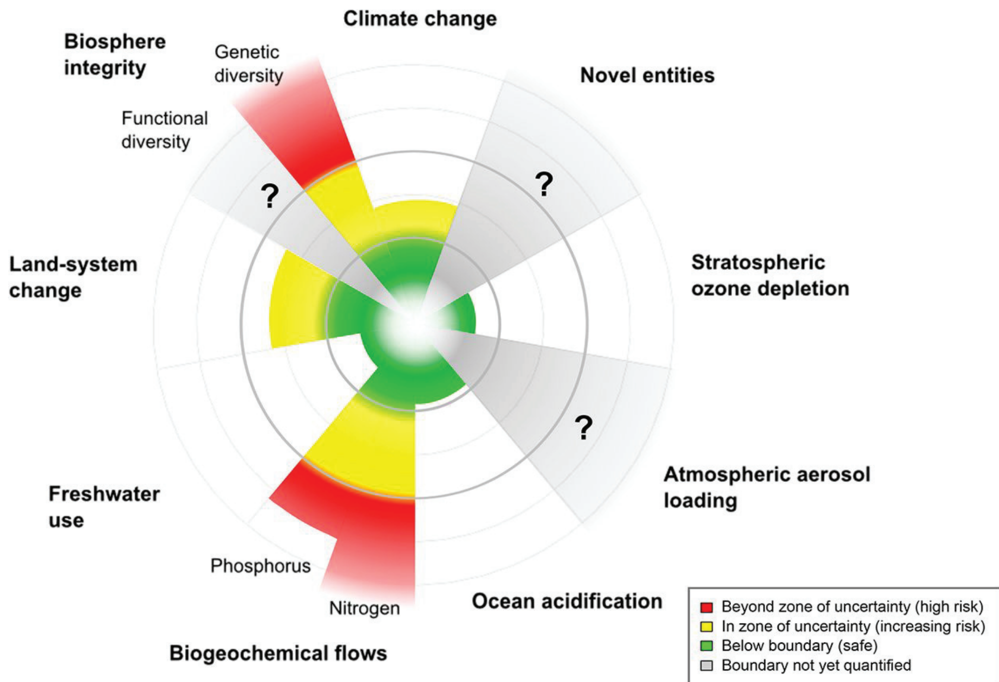


FIGURE 4: THE NINE PLANETARY BOUNDARIES DEMONSTRATE OVERSHOOT IN EARTH'S SUPPORT SYSTEMS (STEFFEN ET AL., 2015)

Circular economy: a new paradigm of sustainability

'All models are wrong, but some are useful' (George Box)

In 1987 the UN Brundtland report brought the concept of sustainability to global attention with its definition of 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland, 1987). It has been redefined and adapted by proponents from the worlds of policymaking, business and academia for a myriad of occasions ever since and there are now hundreds of definitions, making the interpretative versatility of the term both its triumph and to some extent its downfall (Geissdoerfer et al., 2017). Most of these emphasise aspects of longevity, 'the *possibility* that humans and other life will *flourish* on the Earth *forever*' (Ehrenfeld, 2008, p. 49) and acknowledge the interconnectedness and interdependence of different life forms as well as the requirement for a more holistic approach to human activity that will allow for the health, wellbeing and survival of natural systems. John Elkington's 1990s 'triple bottom line' is an often-cited model in which people, profit and planet represent three mutually reinforcing pillars and the necessity for balancing social, environmental and economic outcomes (Elkington, 1998), whilst the well-known 'I=PxAxT' equation provides a useful shorthand for the tensions inherent in sustainability, with environmental impacts (I) being exacerbated in turn by population (P), affluence (A) and technology (T) (Jackson, 2009). More recently Kate Raworth's Doughnut Economics model (Raworth, 2012, 2017) has overlaid human needs onto the planetary boundaries (see Figure 5) to come up with a 'safe and just space for humanity'.

Needless to say, sustainability is a human challenge before an environmental one, concerning as it does the long-term survival of the human race together with the ecological systems it relies upon.

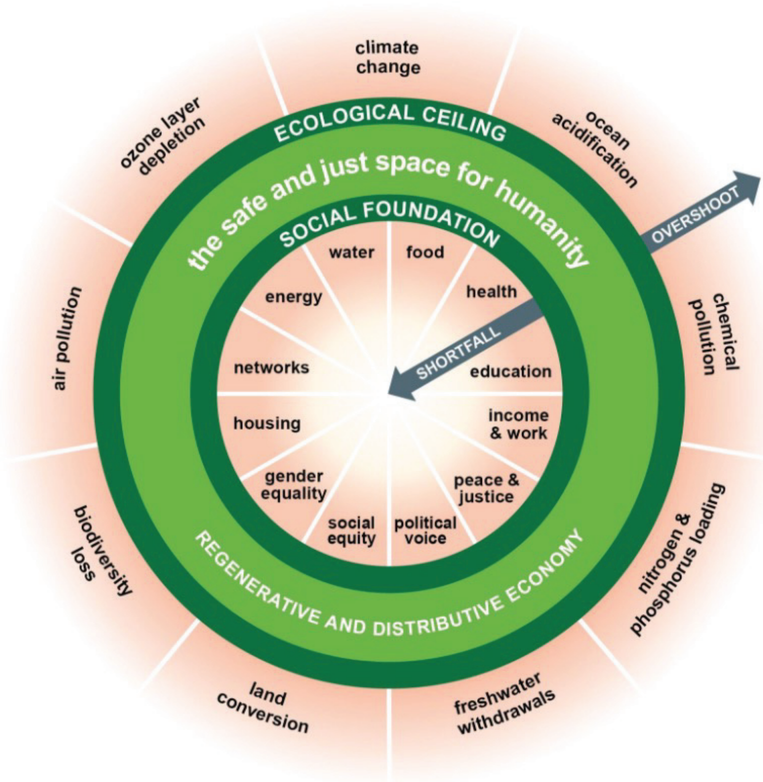


Figure 5: Raworth's model of 'Doughnut Economics' shows the safe operating space for human needs within planetary boundaries (Raworth, 2012, 2017)

Against this backdrop, the model of a circular economy model has been gaining in importance for policymakers, businesses and academia alike over the past 10 years, and particularly through the work of the Ellen MacArthur Foundation and its McKinsey-backed reports (Ellen MacArthur Foundation, 2013, 2020a). The circular economy can be seen as a new sustainability 'paradigm' (Geissdoerfer et al., 2017) and as with sustainability, definitions of the concept have grown exponentially in recent years. There are now more than 100 in use which variously describe closed or open-loop systems, roots in industrial ecology, performance economy, biomimicry and regenerative design, and the slowing, closing and narrowing of material and energy loops through strategies such as maintenance, reuse, repair, remanufacture and recycling (Geissdoerfer et al., 2017; Kirchherr et al., 2017). Its promises of mitigating environmental and waste-related impacts whilst creating economic gains have caught the imaginations of policymakers, governments, industry, businesses and NGOs and been implemented at a strategic level accordingly, for instance by the EU in its Circular Economy Action Plans of 2015 and 2020 (European Commission, 2020) and by

many large corporations such as Google, Unilever, Renault, H&M Group, Philips, BlackRock, Ikea and SC Johnson, all of whom are strategic partners of the Ellen MacArthur Foundation (Ellen MacArthur Foundation, 2020b). The Ellen MacArthur Foundation's definition of a circular economy is probably the most common (Kirchherr et al., 2017), and is as follows (see also Figure 6):

> an industrial system that is restorative or regenerative by intention and design. It replaces the 'end-of-life' concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models (Ellen MacArthur Foundation, 2013, p. 7)

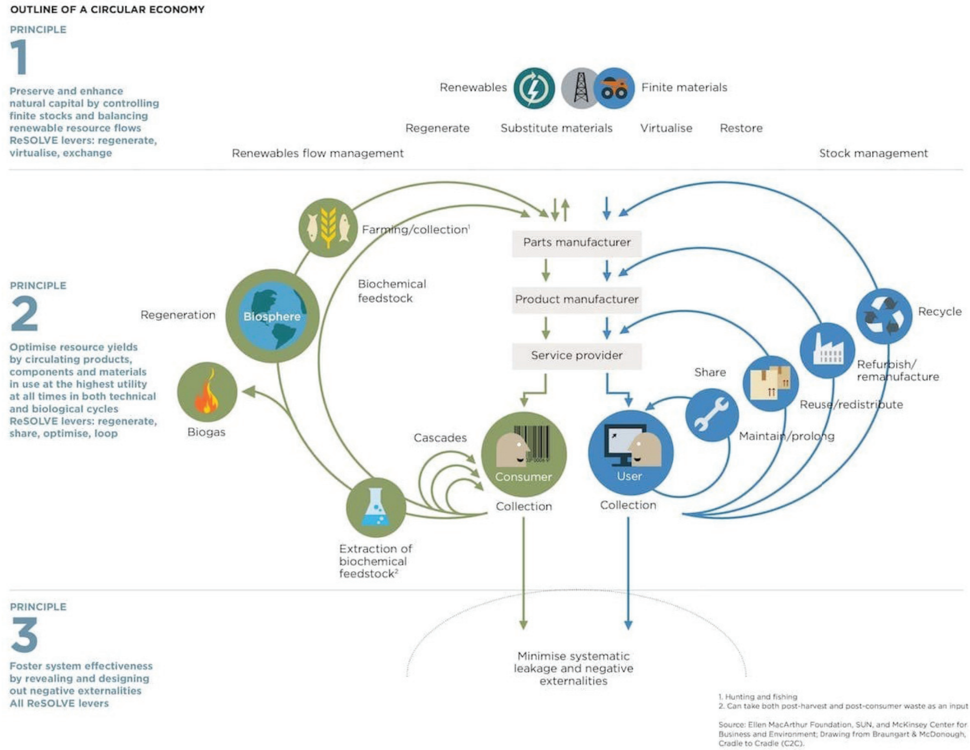


FIGURE 6: THE ELLEN MACARTHUR FOUNDATION'S WELL-KNOWN 'BUTTERFLY' DIAGRAM SHOWS THE DIVISION AND CYCLING OF BIOLOGICAL AND TECHNICAL MATERIALS IN A CIRCULAR ECONOMY (ELLEN MACARTHUR FOUNDATION, 2013, 2020A)

Kirchherr et al. have come up with a further definition, after reviewing more than 114 others:

> A circular economy describes an economic system that is based on business models which replace the 'end-of-life' concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and

> consumption processes, thus operating at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and be-yond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations (Kirchherr et al., 2017, pp. 224–225)

As a new paradigm or model of sustainability, circular economy has much in common with its emphasis on complexity, interdisciplinarity and multi-actor responsibilities for transformation. However, whilst sustainability is traditionally more holistic and keeps societies and environments within its purview, CE focuses largely on the elimination of waste by design and emphasises the involvement of and benefit to economic actors – especially private businesses and policymakers – in so doing. The 2020 EU Circular Action Plan for example suggests that CE can bring 700,000 new jobs and 0.5% growth in GDP, as well as multiple advantages for innovation, entrepreneurship and resource efficiency (European Commission, 2020). It can be suggested that it is these economic advantages, the opportunities for increased profit and reduced costs, that primarily attract the business community to CE where they were perhaps more reluctant to engage with sustainability beyond regulatory obligations or a basic level of corporate social responsibility. It is also perhaps as a result of this enthusiasm for embracing the 'win-win' potential of CE, particularly on the part of policymakers and businesses, that certain pieces of the puzzle have been somewhat neglected and, as I discuss below, new frontiers of research opened up in the CE story.

Missing pieces in the circular model

Aside from the lack of consensus in measurement and definition, many different issues and gaps have been cited when it comes to the conceptualisation and implementation of a CE (Haupt & Hellweg, 2019; Kirchherr et al., 2017). These include a reliance on somewhat problematic subsidiary models like sharing economy, collaborative consumption and product-service systems (Welch et al., 2017), an absence of engagement with the constraints of consumerist and neoliberal economic contexts (Schroeder et al., 2019) and implicit claims of decoupling by protagonists such as the EU who claim that the brilliance of a circular model is in its ability to 'increase resource productivity and decouple economic growth from resource use and its environmental impact' (European Commission, 2017). Absolute decoupling of resource use from environmental impacts has been shown to be a 'myth' by researchers such as Tim Jackson (Jackson, 2009, pp. 67–71), as efficiency advances wrought by technology are not enough to mitigate the effects of affluence or overconsumption, and neither do population numbers make a material difference to the impacts if they are not also associated with significant levels of consumption (Alberro, 2020; Wiedmann et al., 2020). In fact, as authorities such as The Royal Society have shown, material consumption in 'developed' countries must be urgently reduced to achieve sustainable planetary scenarios and current growth-based socio-economic models changed to value natural capital (The Royal Society, 2012).

Current CE policy is framed around conventional industrial or 'market-based' orders of worth which often conflict with ecological orders of worth, and although some have

suggested the potential for a new CE order of worth to emerge from this dissonance (Welch et al., 2017), there is the risk that CE merely reinforces the expectations and social norms of unsustainable, consumption-based capitalism, jeopardising rebound by replaying failed assumptions (Hobson & Lynch, 2016). In fact, Hobson and Lynch argue that current interpretations of the CE align with previous 'green' consumption or eco-modernist approaches, speaking of radical or transformative change and 'win-win' scenarios yet failing to critique the underlying assumptions of neoliberal capitalism such as socially constructed concepts of economic growth. These approaches imply 'weak' rather than 'strong' sustainability, in which consumer products or practices are changed somewhat but the dominant logic of (over)consumption remains uncontested (Hobson & Lynch, 2016). Needless to say CE does not automatically solve problems of overconsumption and sustainability at a global level (N. Bocken & Short, 2020; Schröder et al., 2019); its rhetoric and implication is of structural change and transformation of the linear economy, but it has tended to focus on the technological solutions in the IPAT equation rather than any reduction in affluence (Schröder et al., 2019). Models of repair and reuse, PSS, sharing and longevity may enable sufficiency by helping people to consume less, but some materials cannot be easily returned or recycled and often costs are prohibitive. Moreover, too great a focus on the circling of products and materials can distract from the underlying urgency of reducing overall impacts through sufficiency measures (N. Bocken & Short, 2020). Therefore, although CE may be seen as merely a new frame for the age-old goals of materials efficiency and value capture, focused on technical fixes and new business configurations (Hobson & Lynch, 2016; Schröder et al., 2019), in this thesis I argue that consumption has a key role to play in the transition towards CE and that the need for a more sufficient approach to consumption must also be acknowledged (this is addressed in more detail in Study 2).

Until now many business and other commentators have been largely silent when it comes to the role of consumption in a CE, other than assuming a somewhat passive position for people as the mute recipients of new circular services. The Ellen MacArthur Foundation's butterfly diagram assumes the involvement of consumers and users as a central part of the CE (see Figure 6 above), yet the associated literature does not pay much attention to how they will in fact be engaged. Academic research about CE also tends to focus mostly on technology, business models and global material or money flows, and several authors have pointed to the lack of theoretical or empirical research when it comes to identifying and understanding the role played by consumers in a CE (Camacho-Otero et al., 2018; Piscicelli & Ludden, 2016), though recent work has begun to rectify this lack (Camacho Otero, 2020). The fact that only 19% of CE definitions include consumption reflects a wider research gap in CE consumer perspectives, despite consumers being 'the most central enabler of CE business models' (Kirchherr et al., 2017, p. 228) and the critical inner circles of CE (Ellen MacArthur Foundation, 2013) being in fact strongly influenced by consumers' perceptions and behaviours (Mugge, 2017). In large part it is consumers themselves that have the most significant influence on material and product longevity for instance, as they are the ones to decide when an item has reached the end of its useful lifetime, whether it can still be functional in another context and when and how to dispose of it (Cooper, 2005; Fletcher, 2012).

Moreover contradictory imaginaries of consumption exist within the discourse: emergent research tends to treat consumers as either as ‘accepting’ (or not) the new scenarios without discussing how they will be engaged as active participants, or as the rational individuals that have already appeared in the cognitive models of action endorsed by the fields of sustainable consumption and pro-environmental behaviour for many years (Camacho Otero et al., 2017; Welch et al., 2017). Most literature neglects to take into account the conflicting complexities of ordinary domestic lives or discuss how people will be engaged as active participants, and to date has not focused much on the potential for sociomaterial or sociocultural transformations in this context. Authors such as Hobson, Mont and Heiskanen thus argue that a far stronger cultural narrative is in fact required to support the realities and potentially transformative role of the consumer in a CE (Hobson, 2016; Mont & Heiskanen, 2015). In the words of Hobson and Lynch,

> Prevailing discourse of the CE ascribe to the consumer limited and problematic means of engaging with the issues at the heart of the CE, such as responding to environmental labels or renting rather than buying goods: neither of which are strategies that have to date brought about desired widespread adoption of sustainable lifestyles (Hobson & Lynch, 2016, p. 22).

PHASE:	USE	END OF USE
User ownership (product orientated)	Establishing relationship	Prolong replacement
	Product care	Return product
	Repair	Sell (via third party)
	Engage with product life extension services	Enable reuse
	Product attachment/ownership	Correct disposal/ recycling
Provider Ownership (use/performance orientated)	Adhere to contractual obligations	
	Product care	Fast circulation of goods
	Engage with product life extension services	Reducing operating costs
	Provide information	
	Avoid Product misuse	
	Avoid Damaging behaviours	

Figure 7: copy of Wastling et al’s Model of Circular Behaviour – an outline of desired behaviours for circular business models (Wastling et al., 2018, p. 9 Fig.2)

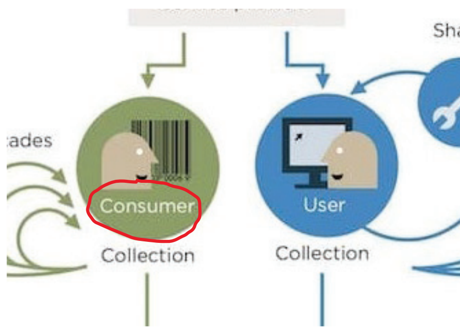
In spite of the overall neglect however, Wastling et al. have produced a model of desired CE user behaviours together with a guide for designers and businesses (Wastling et al., 2018). The study uses Design for Behaviour Change (explored in Chapter 4, Study 1) and other behavioural strategies together with a business-focused approach to describe which behaviours might be required from users in a circular economy and how businesses might encourage these. However, as with much of sustainable consumption literature, business and design perspectives in CE literature

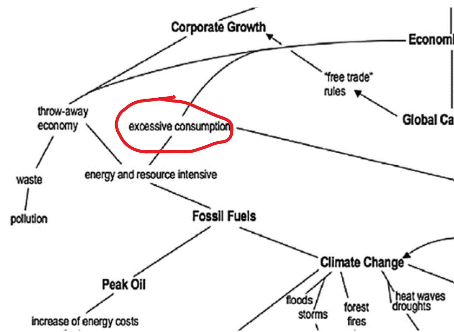
tend to come with a positivist orientation, seeing users as subjects to be led or directed rather than as potential partners in the creation of a CE and often failing to take account of sociological or material culture perspectives that concern, for instance, the shaping of behaviour through 'scripts' in artefacts (Lofthouse & Prendeville, 2018). Circular perspectives, argue Lofthouse and Prendeville, could benefit from a more user-focused design input, with designers considering more humanist, participatory approaches to sustainability in both academic and professional practice. Circular economy studies in particular must start to address issues of consumption and over-consumption as well as the ethics and consequences of product-service systems in which material ownership passes to corporate powers (Lofthouse & Prendeville, 2018). The topic of design will be explored in more detail in Chapter 2.3 below, where it is suggested that design can provide new perspectives for the engagement of consumers or users with a circular economy, beyond the reconfiguring of products and services. First, however, I will turn to the subject of consumption change and the consumer, and explore in more detail some relevant topics from both cultural and sustainable consumption perspectives.

Note: In this thesis I refer to both consumers and users. In general, design literature tends to refer to 'users', with the focus being on a product or practice in use, whilst marketing, business and consumer literature uses the term 'consumer' usually to refer to an individual purchaser – even though in an ontological sense the terms may define the same people. In a design-focused CE moreover, as with a product-service system, consumers can potentially become users and co-creators.

2.2 Consumption research as a locus for change

'The gross national product... measures everything, in short, except that which makes life worthwhile' (President Kennedy speaking at the University of Kansas in 1968, quoted in (Gabriel & Lang, 2006, p. 197)*).*





Understanding consumption research

'Put bluntly, the planet does not care if it is damaged by the consumption of a Tiffany-heart bracelet or by the use of specialised equipment to participate in the practice of hiking.' (Evans, 2018, p. 13)

As Marx recognised, consumption is the counterpart of production and work. Yet for much of the 20th century, following the publication of Weber's 1905 treatise The Protestant Ethic and the Spirit of Capitalism, the question of consumption and its complementary role in evolving capitalist economic systems was largely neglected by the social sciences in favour of a focus on production economics (Campbell, 1987). In spite of this, the sociology of human consumption commands a significant and growing literature in the academy (Evans, 2018), and increasingly material consumption and affluence are recognised as primary drivers of environmental impacts (Ivanova et al., 2015; The Royal Society, 2012; Thøgersen, 2014; Wiedmann et al., 2020).

Consumption can and has been very differently interpreted by different research fields and perspectives and may be concerned, for instance, with the using or using up of a thing, with symbolic communication, or with creative acts (Kjellberg, 2008). Material goods of course are vital to the fulfilment of human needs such as those categorised by Maslow or Max-Neef, and as well as supplying basic requirements for food, shelter and warmth may also satisfy less tangible needs such as those for creation, identity or idleness (Jackson, 2005b, 2005a; Jackson & Marks, 1999). At the same time however, consumption may carry negative connotations of something being downgraded, wasted, spoilt or obliterated. Røpke's description is a useful one:

> In ecological terms, human society can be seen as a metabolic organism appropriating resources from the environment, transforming them for purposes useful for humans, and finally discarding them as waste. Conventionally, the process of transforming resources and intermediate products for useful purposes is called production, while the final use and destruction of useful products is called consumption (Røpke, 2009, p. 2495).

Paradoxically therefore, consumption is both useful and wasteful, creative and destructive. It links domestic activities with the environment (Røpke, 2009, p. 2495), respectively evoking essential processes of basic survival, ordinary household activities as well as the frivolities of shopping or the pleasures of ownership (Julier, 2013). Some authors have distinguished between consumption and consumerism, one being the use of resources for survival purposes and the other an ideology or imaginary and the prevailing cultural mode of operation, which nevertheless meets emotional as well as physical needs and comprises multiple logics (Rowson, 2017). Consumerist behaviours can be seen as inauthentic or conformist, symptomatic of dissatisfaction and even addiction (Ehrenfeld, 2008; Solér, 2018), but consumerism is also a contested term that in some ways 'both describes social reality and also shapes our perception of social reality' (Gabriel & Lang, 2006, p. 9).

The joys of consumption have been promoted for many decades by masters of marketing such as Edward Bernays, nephew of Sigmund Freud, who used his understanding of psychology to endow it with connotations of pleasure, freedom and fun, eliminating old-fashioned notions of thrift and instead seducing people to choose their own destiny by creating their version of the good life (Curtis, 2002). The 'cultural turn' of the 1970s and 80s saw social theorists and academics such as Baudrillard, Giddens and Bourdieu describe this shift in focus from the utilitarian to the symbolic aspects of consumption, emphasising the capacity of consumer products for creating identity, displaying taste, communicating social norms and establishing social position (Bourdieu, 1984; Gabriel & Lang, 2006; Warde, 2014). Material goods were able, it seemed, to tell stories about their consumers through signs and scripts, and even to become part of their 'extended selves' (Belk, 1988).

On the other hand, Veblen's 1899 critique of 'conspicuous consumption' began a discourse of anti-consumption based on moral grounds, and since then various theorists of consumer culture and other moralists have criticised the hedonism, ostentatious acquisition and display of goods embraced by greedy masses as a means of attaining and displaying social status (Campbell, 1987; Veblen, 1899). Vance Packard's The Hidden Persuaders and The Waste Makers in the mid-20th Century drew attention to the manipulative tactics used by advertisers and the material wastefulness of consumer society, whilst books about 'affluenza' at the turn of the 21st century by authors like Oliver James, Thomas Naylor and others dealt with the social and environmental impacts of consumerism, its negative effects on social wellbeing and happiness as well as its indirect destruction of ecological life support systems.

Over the course of the 20th century the figure of the consumer has taken centre stage from that of the citizen and the worker, and consumption, like growth, is now a political measure of success, the act of shopping a virtuous economic activity in Western countries and consumption viewed as critical to economic development in many poorer regions (Baudrillard, 1998; Gabriel & Lang, 2006; Shiller, 2012). In spite of the many benefits which GDP growth and consumption have brought however, evidence suggests that higher spending power does not equate to higher wellbeing (Richins, 2013; Sandel, 2012; The Guardian, 2018; Ward et al., 2016), a topic which is expanded upon in Study 2. As already indicated, in order to achieve the Paris Agreement, reduce climate change impacts on global life support systems and move

towards a circular economy, we will need to adapt our overall consumption and production, recreate economic systems that are less dependent on cultures of consumption and move beyond a reliance on technical approaches to solve systemic problems (Alfredsson et al., 2018). In spite of predictions of 'peak stuff' and shoppers switching from purchasing physical gifts to experiences (A. Walker, 2019) however, it seems unlikely that these trends will make much difference whilst economic success remains tied to the consumption of stuff[2]. There are calls for academic research to move towards a more multi-disciplinary and co-evolutionary approach to studying consumption and providing solutions (Røpke, 2009) and that is what the current thesis sets out to do. In order to respond to these increasingly urgent needs therefore, and to engage consumers more successfully with a circular economy, some perspectives will first be reviewed from the significant body of work that has already taken place in the field of sustainable consumption, particularly as it relates to behavioural and practice change.

Psychological approaches to sustainable consumption and the challenges of individual behaviour change

The UN's working definition of sustainable consumption and production is:

> The use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product, so as not to jeopardize the needs of future generations (United Nations Environment Programme, 2010, p. 12)

Sustainable consumption became a target for policy almost 30 years ago during the Rio Earth Summit of 1992 and together with sustainable production now makes up Goal 12 of the UN Sustainable Development Goals. It is a multi-disciplinary, normative but contested field that addresses how to make current patterns of consumption socially and environmentally sustainable (Middlemiss, 2018), and is studied in diverse ways by multiple disciplines including sociology, psychology, politics and economics. Accordingly there are a number of related terms (e.g. ethical consumption, pro-environmental behaviour, ecological citizenship) which can incorporate distinct and sometimes conflicting worldviews. As already mentioned, the circular economy agenda has somewhat neglected to address aspects of sustainable consumption (Hobson & Lynch, 2016), and likewise research on the sociology of consumption has not yet engaged closely with controversial and politicised issues like ecological collapse and the ramifications of consumerism (Evans, 2018). Most importantly, in spite of an abundance of research over the past 30 years and a more recent growth in concern for environmental issues, 'green' behaviours and sustainable purchasing habits have not been adopted by the mainstream (Middlemiss, 2018) and conventional consumption in the intervening years has risen dramatically. It is worth exploring this field of research in more detail to understand some of the barriers and why sustainable consumption has not become more universal.

[2] As suggested in the Scope, the longer term effects of the Covid 19 pandemic on consumption patterns remain to be seen; due to time and other limitations this remains outside the scope of the current thesis.

Public policymaking in the area of sustainable consumption has mostly relied on theories from social psychology that focus on individual cognition to explain how people act and to influence the public towards ‘pro-environmental’ behaviours (Jackson, 2005b; Klöckner, 2015a; Shove, 2010; Thøgersen, 2014). For instance the Department for Environment, Food and Rural Affairs in the UK made use of psychological insights and social marketing in its 2008 Framework for Pro-Environmental Behaviour to suggest that people were most likely to take pro-environmental action when they had both high ability and high willingness to do so (DEFRA, 2008). Such frameworks and policies often make use of quantitative data and cognitive models to show causal links and predict how people will behave; for example Ajzen’s 1991 Theory of Planned Behaviour and Stern’s 2000 Value-Belief-Norm Theory draw causal relationships between people’s values and attitudes, their intentions, personal or social norms and perceived control over the outcome, and their behaviours (Ajzen, 1991; Klöckner, 2015b). Both of these theories have been integrated in models of Design for Sustainable Behaviour, which I discuss in Study 1. Likewise Steg and others have developed Goal-Framing Theory into an integrated framework for pro-environmental behaviour which suggests that reducing hedonic or gain costs of pro-environmental choice or strengthening normative goals can result in more pro-environmental actions (Lindenberg & Steg, 2007; Steg et al., 2014). Further studies suggest that spatial, social and temporal distance from an issue can translate into psychological distance which affects people’s likelihood to change their behaviour when it comes to complex problems such as climate change: if they feel that it is not going to affect them imminently, they are less likely to act (Middlemiss, 2018, p. 100).

Values are another motivation for behaviour often cited by psychological models, with work by the Public Interest Research Centre in the UK using Schwartz’s values map showing that intrinsic values of universalism, benevolence or self-transcendence are most closely associated with environmental and social sustainability and that people routinely underestimate the emphasis others place on these intrinsic values, leading to misperceptions for instance that everyone else is selfish and materialistic (Public Interest Research Centre, 2011; Schwartz, 1992). Different values can be engaged by different experiences or narratives, which can affect behaviours and attitudes and strengthen neighbouring values on the map whilst suppressing those on the opposite side; for instance marketing and advertising may stimulate self-enhancement and materialism values, with the consequence of suppressing universal or benevolence values that may in fact be more positive for social and environmental sustainability (Public Interest Research Centre, 2011). Nevertheless this research also suggests that, whilst care must be taken not to reinforce unhelpful, often extrinsic values, likewise approaching people with messages that do not fit their dominant values set may make them feel threatened and so it is important to understand their position in order to engage their interest (Public Interest Research Centre, 2011).

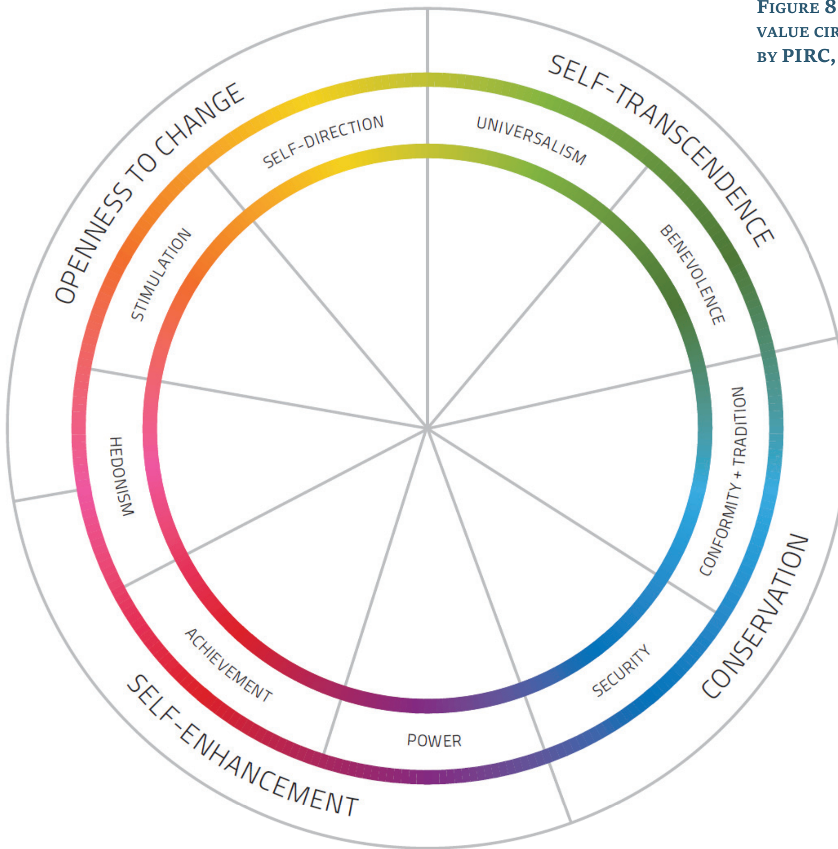


Figure 8: Schwartz's value circumplex (adapted by PIRC, 2011, p. 16)

In many instances these psychological models are instructive and useful, but researchers from other fields have also criticised their narrow focus on cognitive factors and suggested that behaviours are not rational or based on values and choices, and indeed are far more complex than such models imply (Middlemiss, 2018; Shove, 2010; Shove et al., 2012). The prioritisation of psychological and microeconomic theory has led to the problematic depiction of consumers in consumption studies and by policymakers as rational, utility-maximising individuals whose behaviours are based on a cost-benefit analysis (Moisander et al., 2010; Shove, 2010). But studies in ecological and behavioural economics over many years, for instance those by Herbert Simon or Daniel Kahneman or neuroscientist Beau Lotto, have shown that rationality is bounded, the brain easily jumps to (sometimes erroneous) conclusions, and people often rely on these automatic heuristics or on contexts rather than conscious decision-making in their actions (Kahneman, 2012). People look for 'tribes' and are influenced by those they esteem or whose worldview and values they share; their echo chambers and *post hoc* rationalisation reinforce existing values and beliefs, and cognitive dissonance ensures that divergent beliefs are kept at bay. Psychology and science communication professor Dan Kahan for instance has shown how people use confirmation bias to identify experts or scientists as 'knowledgeable and credible'

depending on whether they take a position that is associated with their own previously held cultural outlooks, and the more their point of view is questioned the more entrenched in it they may become (Kahan, 2017). George Marshall's research on climate change communications backs up Kahan's findings, showing that people choose to believe the scientific approach or 'facts' which chime with the worldview they already hold (Marshall, 2018). The figure of the rational 'homo economicus' consumer is thus debunked, with many forms of consumption shown to be emotional, structural or habitual and the rational choice model of utility maximisation a somewhat poor predictor of behaviours (Middlemiss, 2018).

Another problem with using an individualist, rational choice model to influence consumer behaviours is the implication that consumers are merely deficient in knowledge and require more information to allow them to choose sustainable products and services. This so-called 'information-deficit' model has been disproven time after time: people live in a complex world with conflicting priorities, and may be highly educated about the consequences of climate change yet fail to adopt more sustainable behaviours; information alone rarely results in more sustainable consumption unless it is combined with other techniques of persuasion (Ford & Norgaard, 2018; Marshall, 2018). One example of this is ecolabelling, where policymakers and businesses often assume that if only people knew which products were most 'green' or sustainable they would purchase accordingly. Greater supply chain transparency can of course increase trust (Middlemiss, 2018), but the existence of so many labels can be bewildering or overwhelming and even equate to greenwashing (Dangelico & Vocalelli, 2017; Horne, 2009; Middlemiss, 2018; Rex & Baumann, 2007; Solér, 2012)

Perhaps most crucially, it is clear that information alone has been unsuccessful in closing the well-researched values-action gap, also known as the attitude-behaviour or intention-behaviour gap (O'Rourke & Lollo, 2015). In spite of professed environmental values or intentions to engage with green consumption, the gap demonstrates that people do not always act on these due to conflicting priorities and values, social and media norms, habits or infrastructural contexts (Hurth, 2010; Middlemiss, 2018; Public Interest Research Centre, 2011). Even if individuals do move towards more sustainable consumption in one area, there is a risk that the so-called rebound effect will lead to them becoming less sustainable in another – for instance saving money on a more energy-efficient appliance but then spending it on a flight abroad (Chitnis et al., 2014; Hertwich, 2008). Some apparent solutions merely 'shift the burden', resulting in positive feedback loops which create further problems (Ehrenfeld, 2008, pp. 10–21).

A further criticism levelled at psychological models of sustainable consumption is that they tend to individualise responsibility and take an overly moralistic perspective, in some researchers' eyes demonising consumers and citizens and allowing governments to offload responsibility for making large-scale structural changes which may be unpalatable to voters (Kjellberg, 2008). Where governments do step in, as we have seen with circular economy, sustainable consumption policy has often relied on 'weak sustainability' approaches based on ecological modernisation, technology and economic efficiency which have been criticised for obscuring problems of affluence, overconsumption and neoliberalism (Middlemiss, 2018; O'Rourke & Lollo, 2015).

As sustainable consumption research has increasingly adopted postmodern or social practice models, there have been criticisms of behavioural approaches which tend to segment individuals according to certain attitudes and behaviours and somewhat ignore the role of social, political and material contexts, infrastructures and systems of provision - which have nevertheless been shown to play a key role in structuring consumption behaviours (Spaargaren, 2003). The framing around environmental purchasing moreover has often been one of altruism or 'do-gooding' and by extension guilt, neither of which are associated with personal benefits or desirable meanings (Santamaria et al., 2016); the assumption of sustainability has been that one must make do with less, perhaps pay more for less or sacrifice one's identity and be at a disadvantage in order to benefit a far-away ecosystem or generation.

Whilst socio-psychological approaches have provided a strong foundation for studies of sustainable (and circular) consumption therefore, it may be that cultural and sociological perspectives that take into account contexts, identities, routines, meanings, social practices and a somewhat more nuanced portrait of the consumer can increase understanding of this topic and lead to a more integrated approach with greater potential for transition (O'Rourke & Lollo, 2015; Spaargaren, 2003).

Cultural perspectives and sustainable consumption: unmanageability, identity and social practice theory

The consumer: 'now a hero or a heroine, now a victim, now a villain, now a fool, but always central' (Gabriel & Lang, 2006, p. 2).

Cultural perspectives on consumption stem from sociology rather than psychology, are often based in anthropology and rely on ethnographic approaches; the so-called 'cultural turn' traditionally provides a contrast with moralistic or negative views of consumption, instead emphasising its potential for pleasure, creativity and social communication (Evans, 2018). These approaches are more focused on understanding consumption and the consumer than steering or changing them, and to date have not addressed sustainable consumption issues in a significant way or been utilised by policymakers in the same way as psychological approaches (Middlemiss, 2018). An extended discussion of the myriad definitions of culture is not within scope of this thesis, but needless to say it can be seen both as a lens for viewing the world, a blueprint for creating it and a way of giving it meaning (McCracken, 1986). Consumer culture has likewise been characterised in many ways: as economic exchange, the exercise of taste, individual choice, the construction of identity, the release of irrational passions and desires, the quelling of anxiety, a form of addiction, or the consumption of sign value through packaging, advertising and representation(Gabriel & Lang, 2006). Consumption is thus both an expression of freedom and a means of manipulation, over which culture wields power by determining and interpreting the sign values which influence economics, commerce and politics. (Ehrenfeld, 2008; Gabriel & Lang, 2006; Julier, 2014; Kjellberg, 2008; Solér, 2018).

Consumers in turn have been characterised, caricatured even, as unmanageable and paradoxical individuals with contradictory and unpredictable behaviours and complex motivations; ultimately, suggest Gabriel and Lang, 'our actions and experiences as consumers cannot be detached from our actions and experiences as social, political and

moral agents' (Gabriel & Lang, 2006, p. 4). Consumers are therefore sovereign arbiters of choice, powerful heroic agents whom companies defer to with slogans of 'the customer knows best', as well as passive victims of corporate manipulation, exploited by unethical marketing techniques through which they are pacified and coerced into servicing neoliberal economies (Baudrillard, 1998; Gabriel & Lang, 2006; Julier, 2014). They are also social communicators, using material goods and acts of consumption to signify and distinguish social status and identity, and hedonists, fantasists or rebels who pursue pleasurable aesthetic or emotional experiences and create new meanings for the objects they consume (Baudrillard, 1998; Gabriel & Lang, 2006; Julier, 2014; Rowson, 2017; Veblen, 1899). Consumption may thus be seen as a 'site of creativity and resistance' that is more than the counterpart of production (Evans, 2018, p. 14), and increasingly even this division has been blurred for instance by the advent of the 'prosumer', as companies engage people as participants in the creation and de-alienation of artefacts (Ritzer, 2014; Ritzer et al., 2012; Toffler, 1980).

Warde suggests that the cultural turn has been responsible for upholding models of an active, individual consumer concerned with choosing and expressing their personal identity – in so doing perpetuating neoclassical models of a sovereign, utilitarian consumer and sidelining the habitual, inconspicuous aspects of consumption and to some extent its materiality (aspects associated with practice theories) (Warde, 2014). Evans on the other hand argues that whilst social practice theory approaches (see below) have successfully highlighted the nuances of inconspicuous consumption, it is now time for a return to concepts of power, aesthetics and desire, the more critical stance of postmodern cultural theory, and acknowledgement of the devastating environmental impacts of overconsumption (Evans, 2018). These two ontologies of identity and social practice theory are relevant to the discussion on sustainable or circular consumption, so I will briefly examine each in turn.

Consumer culture theory and postmodern theories tend to follow the work of Giddens, Bourdieu and Baudrillard amongst others in emphasising the role of consumption as a taste-maker and identity-creator, a means for social display and symbolic communication (Hurth, 2010; Warde, 2014). In the consumer society that has evolved during the latter part of the twentieth century, commodities have increasingly been used to signify meanings, shape lifestyles and express identity; consumer products have become an extension of the self, and people 'are' what they own (Belk, 1988). Consumption also allows people to construct relationships with and within social groups, and to gain peer approval through certain material goods and rituals, although those who do not conform to social expectations by consuming in the 'right' way may suffer stress or anxiety as a result (Middlemiss, 2018; Solér, 2018). Only a small proportion of people identify as environmentalist, green or ethical consumers however, with such a distinction perpetuating the divide from 'mainstream' consumers. Nevertheless, these 'eco' or 'ethical' consumers may be able to find social capital or peer approval in their choices of reused, long-lasting or low-impact items (for example), and increasingly there is a move to combine the environmentally conscious with the personal care and wellness movements (see Study 2) (Middlemiss, 2018), which could have significant implications for the study and experience of identity.

The concept of 'identity' highlights the intangible, emotional needs that people have on top of their physical ones and is suggested by some researchers to be similar to, or even more salient than, the role of values in structuring behaviour (e.g. Gatersleben, via Middlemiss, 2018, p. 99). As with values, people can have many different and even apparently opposing identities, organised hierarchically in order to maintain self-congruence. Different situations stimulate different identities and behaviours, which are reinforced by social interaction, long-term commitment and reflexive self-monitoring (Hurth, 2010). Similarly to PIRC's findings about materialistic values (see psychological approaches, above), affluent identities are often contradictory to environmental ones yet tend to dominate due to their social desirability (Hurth, 2010). Hurth for one sees a strategy that resorts to fighting affluent identities in order to release environmentalist ones as futile: instead, 'the affluent and environmentalist identities must be brought closer together so that environmentalist identities gain the allure of affluence and values associated with affluence become more aligned to environmental values' (Hurth, 2010, p. 131). As with the values-action gap therefore, identity can present difficulties when it comes to the shift towards more circular or sustainable consumption, as changing consumption patterns may involve questioning, reassessing or otherwise threatening deeply held identities. People may care about the ethics and sustainability of their shopping basket for instance, but their role as a responsible mother or father may take precedence and lead them to prioritise near-at-hand considerations of family budgets and preferences over far-off considerations of resource use, pollution or sustainability. Moreover it is difficult to dismiss anybody's consumption as unnecessary or conspicuous: an item that appears frivolous to one person may conversely seem vital to the social identity of another.

FIGURE 9: SOME IDENTITIES MAY REPRESENT A BARRIER TO CIRCULAR CONSUMPTION (IMAGE COURTESY OF DARKB4DAWN, 2020)

In addition to using goods and services as props for the creation of self-identity, there are other ways in which consumption escalates: ‘positional consumption’, which normalises increasing levels of luxury as people struggle to ‘keep up with the Joneses’ (O’Rourke & Lollo, 2015), ‘novelty’ in which people constantly seek out the new over the old in order to avert boredom, ‘matching’ and ‘ratcheting’ which see people replace all of the items in a room, for example, to match one new item or when it makes the rest seem shabby, and ‘specialisation’ which describes the explosion of specialist (yet similar) equipment, goods and services produced to fit particular hobbies or social situations (Shove & Warde, 2002).

This brings us to Shove and Warde’s well-cited contention that many environmental impacts occur not as a result of conspicuous consumption, but rather due to ‘infrastructure, interdependence, and the creeping evolution of normal standards’ (Shove & Warde, 2002, p. 12). In other words, inconspicuous consumption is a result of changing meanings, such as the once ‘extreme’ or ‘luxurious’ becoming ‘normal’ (a spare bedroom, central heating), established infrastructures which are out of the direct control of the consumer but which nevertheless frame their actions and choices (transport options, bathroom fixtures), and technologies which change expectation as a result of changing performance (washing machines, TVs) and often necessitate the purchase of associated items (Shove & Warde, 2002). Everyday consumption should perhaps therefore be examined in the context of ‘the different networks of power that constitute the conditions of possibility for subjectivity and agency in the market’ (Moisander et al., 2010, p. 77), or the tangible and less tangible infrastructures such as those shaped by government and businesses. Focusing on lifestyles and practices rather than the individuals themselves, say some researchers, could help to reformulate targets for sustainability and reach a wider audience (Spaargaren, 2003).

Many sociological theories thus differentiate themselves from psychological approaches which emphasise individual agency by accentuating the importance of material and social infrastructures, cultural norms and tacit understandings in determining the ways in which people act. Social practice theory may be seen as a sub-field or branch of cultural theories positioned between technological and socio-psychological perspectives (Reckwitz, 2002) which grew out of Giddens’s structuration theory, is strongly associated with Pierre Bourdieu (Bourdieu, 1984) and attempts to reconcile the dichotomy of human agency and social structure (Røpke, 2009; Warde, 2014). It takes social practices rather than individual behaviours, attitudes or norms as the unit of analysis to examine, for instance, the diffusion of environmental innovation, systems of provision, or the emergence of alternative lifestyles (Spaargaren, 2003), and practices can be characterised as both entities and performances. In the words of Warde,

> Against the model of the sovereign consumer, practice theories emphasise routine over actions, flow and sequence over discrete acts, dispositions over decisions, and practical consciousness over deliberation. In reaction to the cultural turn, emphasis is placed upon doing over thinking, the material over the symbolic, and embodied practical competence over expressive virtuosity in the fashioned presentation of self. (Warde, 2014, p. 286)

Rather than blaming individual consumers and moralising about behaviours, people are seen as carriers or practitioners rather than cognitive agents, with emotions, understandings, material things, activities, procedures and other properties emerging as part of the practice (Røpke, 2009). Shove and Pantzar's framework simplifies this into a configuration of materials, meanings and competences or skills, which interact and influence each other in the production and reproduction of a practice (Pantzar & Shove, 2010; Shove et al., 2012). In the context of sustainable consumption, practice theories emphasise the significance of material resource use and related practices such as shopping, as well as consumption which happens as a result of people fulfilling everyday social roles and routine concerns, much of which is environmentally impactful yet socially invisible or unconscious (Evans, 2018; Mylan, 2015; Røpke, 2009; Warde, 2014). As practitioners, people transform and appropriate resources in the pursuit of meaningful activities, neither hapless victims of market forces nor information-rich sovereign deciders (Røpke, 2009). From a practice perspective change or transformation can happen through reproduction and performance, by changing one element in the practice, substituting the whole practice or changing the way different practices interconnect (Mylan, 2015; Shove et al., 2012; Spurling et al., 2013). But change can be difficult due to constraining infrastructures and contexts, path dependencies and historical circumstances (Røpke, 2009). Mylan suggests that needs and practices evolve together with new business models, technologies, innovations and structures (Mylan, 2015); models such as sustainable product service systems (SPSS) and circular innovations could thus be understood as transforming rather than meeting people's needs.

However, practice theory has received criticism for its preoccupation with the material and the mundane, for negating individual agency, conscious choice and self-direction without developing credible alternative models or methodologies and paradoxically calling for collective, practice-based change without acknowledging the role of individuals in such change (Middlemiss, 2018; Reid & Ellsworth-Krebs, 2019; Warde, 2014). There is also the risk that individual people as 'practice carriers' are excluded from decision-making processes and become pawns in a political game or intervention that could be used to bypass individual involvement or even justify public manipulation (Middlemiss, 2018). The question of agency in fact remains somewhat unresolved amongst practice theorists (as in wider sociological theory), with some describing the integration of practices by an individual in pursuit of a lifestyle or identity and others arguing that such an account is in fact an example of methodological individualism and at odds with practice theory itself (Kuijer & Bakker, 2015; Røpke, 2009).

Whilst endorsing the insights provided by practice theory, Evans recommends that by abandoning its ontological commitments,

> consumption can be approached empirically and empathetically but then analysed in relation to the larger scale phenomena – global flows of capital, corporate interests, brand and advertising, ideologies of consumption – that exert at least some influence on the environmentally significant moments of *acquisition* and *disposal* (Evans, 2018, p. 13) (see Study 2 for more on the 'moments' of consumption).

Overconsumption may thus also be seen as contextual, indeterminate and differently constructed: people adopt different identities, practices or lifestyles at different times and places, and 'anti-essentialist' views of human nature suggest that actors (or over-consumers) *become* or are *created* in practice rather than existing as one unified self (Kjellberg, 2008; Spaargaren, 2003). It is perhaps necessary, as Evans suggests, for the field of sustainable consumption to address with more urgency the ethical and environmental challenges at hand, to consider how the concepts of cultural and material limits and excesses can be more closely linked and, rather than laying responsibility on the individual choice-making consumer (or indeed exonerating the consumer through an exaggerated focus on practice and infrastructure), also to focus critique 'more squarely and systematically on the role of commercial actors and cultural intermediaries' (Evans, 2018, pp. 15–16). If, as Baudrillard argues, wealth lies in human relationships rather than possessions, modern materialist society is actually languishing in poverty whilst consuming more resources than ever before (Baudrillard, 1998). The challenge is therefore to address simultaneously the challenges of deep ecology or the value of nature on the one hand, and those of human emotion or desire on the other (Kjellberg, 2008). With these sentiments in mind, I now turn to examine the matter of design.

2.3 Design as an instrument of change

New directions in design

'Design is a way to understand things, to make them meaningful' (Krippendorf, 2006)

The definition, process and purpose of design are still very much contested. It has been seen as a science for problem-solving (Simon, 1969), a way of giving form to material, the result of reflection in action (Schön, 1983), a means of abductively working on problems and solutions and a liberal art that works on 'wicked' problems to serve human needs (Buchanan, 1992; Kimbell, 2011, 2012). Design creates or adds value and is intimately concerned with change: it is 'the human capacity to shape and make our environment in ways without precedent in nature, to serve our needs and give meaning to our lives' (Heskett, 2002, p. 7). According to Klaus Krippendorf,

> Design is a way to understand things, to make them meaningful, to feel at home with them, and to make them part of one's life. In that process, people realise who they are to themselves and in view of others, of the members of their community. This is true not just for professional designers. It occurs in everyday life (Krippendorf, 2006, p. 73).

Debate still rages over whether 'everyone designs' or whether it is a professional activity, but to some extent humans have always been designers, fulfilling practical, emotional and aesthetic requirements by choosing, using and interacting with materials and artefacts to shape their surroundings (Skjerven & Reitan, 2017). As a profession which traditionally responded to specific problems with material solutions and was dominated by rational thinking and doing over reflecting (Akama, 2018), design practice and research have been largely a 'discourse of objects' (Skjerven, 2017, p. 25). In recent years however design has evolved as a field which encompasses many other disciplines and has developed a growing concern with practices, consumption and the shaping of culture and society (Kimbell, 2011, 2012). Calls for design to take a more systems-focused, cultural (rather than technical) approach in addressing societal issues (Ceschin & Gaziulusoy, 2016) have mirrored those for CE literature to incorporate sociological, cultural, design and user perspectives in addressing overconsumption (Lofthouse & Prendeville, 2018). Krippendorf sees this move from technology-centred to human-centred design as a paradigm shift or 'semantic turn' which is ushering in a new design culture, one that supports networks over hierarchies, that proposes desirable futures rather than finding technical solutions and that promotes creative exploration and interactivity over rationally derived functions based on past records (see Table 1). In a similar way Julier describes design culture as working through different mediums and processes, material and immaterial elements, but always aiming to communicate and to focus on future global change: it 'expresses an attitude, a value and a desire to improve things' (Julier, 2014, p. 6). As a 'generator of *value*' it deals with concepts of value, creation and practice and relations between designers, production and consumption (Julier, 2014, p. 8-9).

Functionalist Society	Design Culture
Technology-centred	Human-centred
Hierarchical knowledge structures	Stakeholder networks, advocacy, and markets
Rationally derived and assigned functions	Interactively negotiated and supported meanings
First-order understanding	Second-order understanding
Technology serves to predict and control	Technology facilitates design in everyday life
Finding technological solutions to social problems	Proposing desirable futures and paths to them
Researching past records for patterns	Creating and exploring required variability
Know-what was, how something worked	Know-how to transform possibilities into realities

TABLE 1: THE MOVE FROM A FUNCTIONALIST SOCIETY TO DESIGN CULTURE (KRIPPENDORF, 2006, P. 72 FIGURE 2.10)

As such design has moved beyond material form to address human behaviours and the roles and meanings of objects in use within wider socio-cultural contexts, and of these objects and contexts in configuring human relationships and identities or structuring systems of encounter with the material and visual world (de Jong & Mazé, 2017; Julier, 2014, p. 11; Leube, 2017). The phenomenon of the so-called experience economy for instance has given precedence to sub-fields such as service design, which aim to engage consumers in product-service experiences through theatrical performances which forge emotional ties and lasting memories (Lupton, 2017; Pine & Gilmore, 1999). Cars become driving, food becomes dining and users are in turn involved in shaping products and brands through co-creation. As indicated by Julier and Krippendorf design is also intrinsically concerned with future change, and Mazé has drawn attention to its power in shaping policy or planning decisions and influencing daily life through giving form to the future and creating cultural norms: 'design can be understood as a profoundly political act, whether we are reflexive or intentional about this or not', she says (Mazé, 2019).

Ultimately, the field of design has regularly come under fire for stimulating consumerist economies, perpetuating materialism and unsustainable growth and not only fulfilling but creating and even manipulating human needs in partnership with professions like marketing (Skjerven & Reitan, 2017; S. Walker, 2017), thereby providing systems for the consumption and exploitation of material resources (Heskett, 2017). Nevertheless, design also has the potential to allow for complexity, to create new structures or patterns that act on behaviour, to make ethical and sustainable choices such as for reduced waste, increased longevity, reusability or human wellbeing and to engage users and consumers in the process (Fuad-Luke, 2009; Skjerven & Reitan, 2017; S. Walker, 2017). Ultimately it may represent a means of intervening in systems without necessitating crisis or collapse, enabling an escape from the lock-ins of consumerism without relying on individual willpower or resorting to revolution (Ehrenfeld, 2008; Donella Meadows, 1999).

Design for sustainability and behaviour change

'Changing users' existing habits, beliefs and activities and creating new ones for sustainability requires a deep cultural transformation....where what is normally considered of value is redefined' (Santamaria et al., 2016, p. 17)

Ezio Manzini and Victor Papanek are two of the founding fathers of a movement that has shown the potential of design for challenging the social and environmental problems associated with spiralling resource use and waste and instead creating more resilient, sustainable ways of living (Fuad-Luke, 2009; Skjerven, 2017). Methodologies and terms such as eco design and green design were popular during the 1990s and 2000s but traditionally focused on technical and material issues such as recycling, energy efficiency, product disassembly and reuse and to a large extent neglected the experiential, behavioural, emotional or cultural dimensions of material interaction. As has been the case with CE to date, design literature and discourses have tended to focus on the production aspects of sustainability or the design of business models, an approach which may suit current neoliberal or commercial interests but ultimately leads to an increase in waste through material optimisation and efficiency (Chapman & Marmont, 2018, p. 349). However, product and techno-centric innovations have more recently evolved into a greater focus on the role of people and the dynamics of consumption as well as systems-level challenges and the facilitation of sustainable futures (Ceschin & Gaziulusoy, 2016). Likewise increasingly transdisciplinary and multidisciplinary approaches to sustainability in other fields have started to embrace the potential of design (Skjerven, 2017, p. 26). The evolution of Design for Sustainability (DfS) has been categorised for example into four different but overlapping levels of innovation: product, product-service-system, spatio-social and socio-technical (Ceschin & Gaziulusoy, 2016) (see Figure 10), and many approaches or sub-fields within these levels may be useful in the context of addressing and transforming consumption for a circular economy (e.g. Design for Sustainable Behaviour, Design for Social Innovation or Emotionally Durable Design). By affecting people's actions and perceptions of how they act, design thus has the potential to both shift everyday interactions and create large-scale changes in the name of sustainable futures (Lockton & Ranner, 2017).

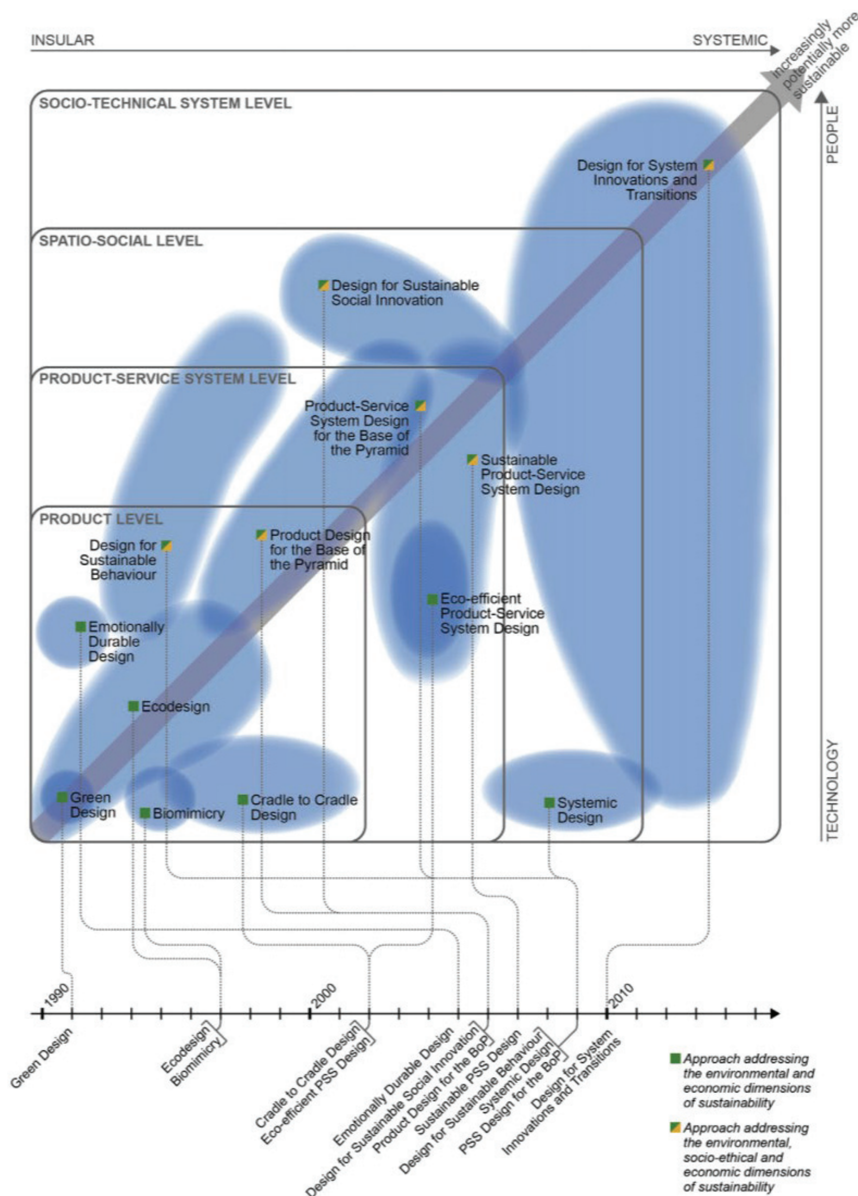


Figure 10: The DfS Evolutionary Framework with the existing DfS approaches mapped onto it (Ceschin & Gaziulusoy, 2016, p. 144 Figure 2)

When it comes to social change and creating cultural sustainability, there are therefore many approaches available to designers: understanding beliefs, norms, narratives, cultural codes or symbolic value can provide opportunities for representative intervention and persuasion (Santamaria et al., 2016), whilst ideas of experiential learning, Giddens's notion of practical consciousness or Maturana's suggestion that doing is knowing (and knowing is doing) all emphasise the experiential nature of knowledge and social transformation (Ehrenfeld, 2008, p. 69). Emotional design

perspectives emphasise that the symbolic and emotional value of design can be similarly or more important than functionality, that emotion triggers action and reveals concerns, and this must be accounted for in sustainable creations (Cupchik, 2017; DeLaure, 2018; Desmet, 2013; Desmet & Hekkert, 2007; Lupton, 2017; Verganti, 2008). Material culture theory and social practice theory are examples of theoretical approaches which concern the meanings and agency of objects in the construction of social identity; users may be seen as participants who are also 'designers of novel ways of doing' (de Jong & Mazé, 2017, p. 438) through their everyday performances and routines in which they involve products in the reproduction of cultural norms or values. Materials and artefacts thus play an important role in meaning-making and sense-making (topics I explore further in following sections and in Study 2), and hence in the potential transformation of conventions related to sustainability (de Jong & Mazé, 2017).

Back in the 1950s it was revealed that behaviour change had more to do with experience than with predisposition, and that through participation and interaction people can learn to reorientate enjoyment, redefine meaning and reach new perceptions and interpretations (Becker, 1953). Design has likewise been recognised as an influence on people's behaviour for many years: Gibson and then Norman's concept of affordances and mapping for instance, or Akrich's research on scripts, show that products themselves have a bearing on the user's perception of and interactions with them, and that design plays a key role in shaping these interactions. The designed world can act back! Ingram et al. draw parallels between sociological concepts like scripts, appropriation, assembly and normalisation that describe relationships between people and the material world, and concepts from design research; for instance between emotional design and acquisition, scripting and user experience or interface, appropriation and users acting back, assembly or normalisation and product design or evolution (Ingram et al., 2007).

Design studies unsurprisingly tend to prioritise the designer as the creative force in developing new products and services, but recent years have seen design practice increasingly incorporating the inputs and influences of consumers as co-producers in the development process (Ingram et al., 2007, p. 16). The agency of consumers or users as opposed to designed artefacts or technologies is a central debate in social science as well as design research, together with the inadequacy of theories which focus exclusively on the power of either technology or human agency alone to effect change; the split between the two is in fact inaccurate and misleading and has led to System Innovation Theory, Practice Theory and Actor-Network Theory (ANT) instead being proposed by Pettersen et al. as examples of perspectives which acknowledge the reciprocal relation between actors and contexts (Pettersen et al., 2013). ANT focuses on agency as an outcome of the relations between human and non-human actors in networks and includes the concept of scripts that can be inscribed into products or services by designers in order to prescribe (or proscribe) the actions of users. Practice theory, as described in the previous chapter and in more detail in Study 2, studies the transformation and routinisation of practices as composed of dynamic elements and carried by people, whilst system innovation theory takes a broader perspective to the transformation of society through interrelated system elements, actors and structures (Pettersen et al., 2013).

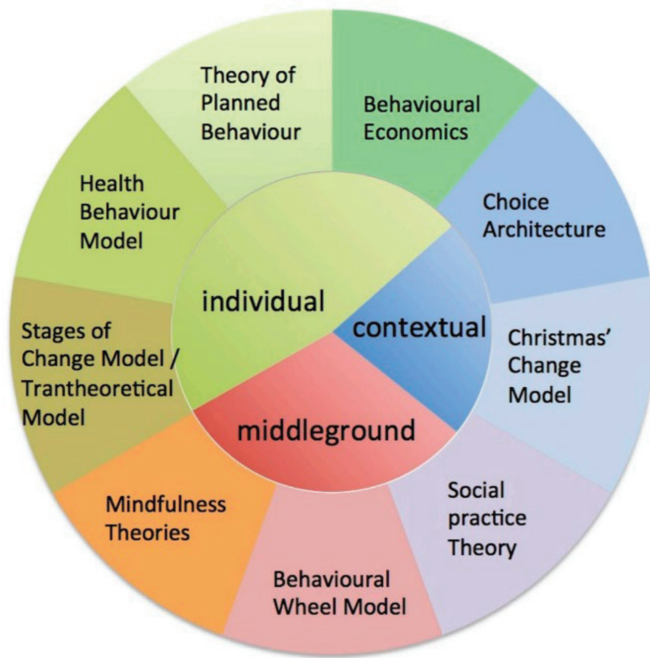


FIGURE 11: NIEDDERER ET AL'S IMAGE CLASSIFIES DIFFERENT BEHAVIOUR CHANGE MODELS ACCORDING TO INDIVIDUAL, MIDDLEGROUND OR CONTEXTUAL APPROACHES (NIEDDERER ET AL., 2014, P. 18 FIGURE 3)

Design for Behaviour Change (DfBC) deals with the shaping of human behaviours in areas of health, safety, wellbeing and sustainability, but is still an immature area of research. In their review of design for behaviour change Niedderer et al. summarise change models that have influenced design strategies, placing them on a spectrum from 'individual' (e.g. Theory of Planned Behaviour) to 'contextual' (e.g. Choice Architecture), with several in the 'middle ground' (e.g. Practice Theory) (Niedderer et al., 2014). These models in turn give rise to different design approaches for influencing or changing behaviour, which are mostly 'either about changing how *easy* or *difficult* it is to do, or about making it so people *want* to do (or not to do) it' (Niedderer et al., 2014, p. 18) – in other words using individual persuasion, attitudes and cognition or environmental prescription, infrastructure and policy to encourage certain behaviours and prevent others, making desired behaviours easier or more attractive, or undesired behaviours harder or less attractive. In a similar way, Zachrisson Daae and Boks also review design literature to reveal a spectrum of control from user to product, or from information to automation (see Figure 12); following workshops and interviews, they then extrapolate nine dimensions which show how designers may influence people's behaviour (Zachrisson Daae & Boks, 2014).

User in control

		Lilley et al., 2005	Rodriguez & Boks, 2005	Elias et al., 2007	Bhamra et al., 2008	Lockton et al., 2010
Informing	Information Feedback Enabling	Eco-Feedback		Consumer education Feedback	Eco-information Eco-feedback Eco-spur	Thoughtful
Persuading	Encouraging Guiding	Scripts and Behaviour Steering	Functionality matching	User Centred eco-design	Eco-choice Eco-steer	Shortcuts
Determining	Steering Forcing Automatic	'Intelligent' Products and Systems			Eco-technical intervention Clever design	Pinballs

Product in control

FIGURE 12: THE DISTRIBUTION OF CONTROL IN LITERATURE (ZACHRISSON DAAE & BOKS, 2014, P. 4 FIGURE 1)

I come back to these dimensions and address Design for Sustainable Behaviour (DfSB) in more detail in Study 1, but here I will briefly outline the concept of 'nudging' which to some extent underlies it. The work of Lakoff, Varela, Kahneman and others has led to new understandings of cognition as influenced by the body, culture, interaction and surroundings and not just by the brain or through observation. Capabilities and new knowledge arise from interaction, via the body, and are then transferred to the intellect; in other words, thought must be changed through action rather than the other way around. Nudging does not guarantee a change in attitudes but is based on behavioural economics research, and attempts to redesign the context or 'choice architecture' within which people act in order to encourage them to make the 'right' choices, but without actively instructing or banning any other behaviours (Thaler & Sunstein, 2009). It uses devices such as defaults, anchoring, choice editing, trusted intermediaries, social comparison, prompts and altered physical environments to encourage more sustainable or socially agreeable behaviours (Middlemiss, 2018; O'Rourke & Lollo, 2015) and has been used by policymakers such as the UK's Behavioural Insights Team or 'Nudge Unit' as well as the Department for Environment, Food and Rural Affairs (DEFRA) as a cheap and effective way to improve outcomes related to tax collection, education, road safety and sustainable behaviours (DEFRA, 2008; Eppel et al., 2013). Nudges may be cognitive or moral, but according to Allcott and Kessler they must have been purposefully devised to benefit the individual or the environment (e.g. a 'green nudge') to warrant the denomination of nudge (Allcott & Kessler, 2019).

Of course, nudging and other behavioural change strategies have been accused of behavioural engineering or libertarian paternalism and strongly critiqued by post-structuralist perspectives as a stealthy, manipulative means of control and coercion by

the powerful but not necessarily the competent (White, 2013). Moreover people may not all react in the desired way and there are risks of rebound, backfiring, people taking opposing action, or of creating short-term successes that merely 'herd' people temporarily rather than instilling long-term social learning through cognitive deliberation (Lehner et al., 2016; Middlemiss, 2018; O'Rourke & Lollo, 2015; Pettersen & Boks, 2008; Reid & Ellsworth-Krebs, 2019). There is even evidence that the welfare effects of nudges may be overstated and the costs underestimated (Allcott & Kessler, 2019). Nevertheless, although it is uncertain whether nudging or scripting for instance can change motivations or values, intervening during times of change has been shown to influence and catalyse new behaviours that last (O'Rourke & Lollo, 2015). Moreover changes in performance or action may stem from very different understandings and interventions, and thus there are many possible routes for design to take – both in terms of the spectrum from individual to contextual levels and in affecting action directly or looking to influence motivations or meaning. When it comes to social change, designers are arguably responsible for the results of human interactions with their designs: according to Manzini, Fry and others, the role of designers in conceiving, creating and prescribing objects, services and ways of relating gives them power as well as important ethical responsibilities to create artefacts and actions that are beneficial rather than detrimental to society - particularly with regards to social wellbeing and sustainability (Fry, 2009; Manzini, 2006; Pohlmeyer & Desmet, 2017). As a cultural communicator and go-between, design has the power to influence social networks and feedback loops which continually constrain or reinforce values, structures, norms and rules of conduct (Capra & Luisi, 2015b) and which may therefore both facilitate and hinder actions leading to a circular economy.

Cultural intermediaries and communication[3]

'Meanings flow among cultural categories and consumer goods via cultural intermediaries, including designers, marketers and consumers' (Santamaria et al., 2016, p. 18)

The principles of user-focused design may suggest that form follows function, that products and services are designed in response to the real needs of people, but designers - like marketeers – have also been accused of *creating* wants and needs that did not previously exist rather than just responding to them. For better and worse, as creators of taste and cultural intermediaries, designers have been intricately implicated in the late-20th Century dominance of branding and globalisation, instrumental in creating product infrastructures and delivering models of 'faster, better, cheaper' (Julier, 2014, p. 45) that in large part run counter to circular economy models of slower, narrower and longer-lived (N. Bocken & Short, 2020). According to

[3] As indicated in the Scope, the design of digital technologies created to steer people's attention and command their time is not covered in this thesis, but it should be acknowledged that social media and technology companies use psychological persuasion techniques in a 'race to the bottom of the brain stem' to influence what millions of people confront on their screens, think and act on each day (T. Harris, 2017; Hopkins, 2019). According to Harris a 'design renaissance' is required, in which digital models are more accountable to users, less dependent on advertising and used to help solve complex social problems (T. Harris, 2017).

Heskett, design does not merely add value but also provide users with 'what they never knew they wanted or realized they could have' (Heskett, 2017).

By generating value through material and non-material elements and at cultural 'nodes' such as media or retail outlets, museums and websites, design acts as a kind of 'laxative' which facilitates flows of information as well as material objects through a system, anticipating and shaping future desires (Julier, 2014). It may be used by producers to destabilise established practices or introduce new products and services through tools of assimilation such as MAYA, 'most advanced yet acceptable', which ensures acceptability by providing resemblance to familiar associations (Callon et al., 2002; Julier, 2014). Designers are skilled in understanding people's desires, values and behaviours and influencing these or legitimating new technologies through the way they construct meaning, redefine value, create narratives and frames and shape culture and consumption (Lofthouse & Prendeville, 2018; Santamaria et al., 2016). By interpreting tacit knowledge and trends to explore future scenarios and create culture and influence, they engage in an inchoate work of visioning and sensemaking, experimenting with new meanings, shaping products, social interactions and experiences and drawing these meanings and experiences in new directions (Skjerven & Reitan, 2017; Verganti & Öberg, 2013). For instance, Verganti's model of design-driven innovation (DDI) describes the ways in which designers or innovators interpret subtle socio-cultural dynamics to propose radically new meanings that have the potential to bring about significant changes in socio-cultural regimes (Verganti, 2008), whilst Santamaria et al. argue that design should actively promote intrinsic rather than extrinsic values, and suggest making sustainable products and services more appealing to the mainstream by framing them around a discourse of wellbeing or happiness (Santamaria et al., 2016).

Fundamentally, design communicates, and designers and others may use different modes or semiotic resources to produce texts and create meaning in particular communication situations or domains of practice (G. R. Kress & Van Leeuwen, 2001; Verganti, 2008). Not only information and graphics but, as in the case of scripts and scripting mentioned previously, also products or material objects may become props for social interaction, instruments of persuasion or elements in semiotic systems (Crilly et al., 2008). In such a way design may be considered 'not just as a process of mediated communication, but as a form of *mass media*' (Crilly et al., 2008, p. 429), experienced as part of everyday life and with large scale representative or persuasive appeal for audiences, consumers or users.

As with many other topics, there is not room here for a detailed explanation of communication theories, of which there are a huge number in the cybernetic, sociopsychological, sociocultural, semiotic, phenomenological, rhetorical, critical and other traditions; there is indeed no single consensus on or definition of communication but rather a multiplicity of approaches which may be seen as sitting along a spectrum of inclusiveness, intentionality and judgement (Littlejohn & Foss, 2011, pp. 4–6). Littlejohn & Foss suggest that communication is the 'primary process by which human life is experienced; communication *constitutes* reality. How we communicate about our experience itself forms or makes our experience' (Littlejohn & Foss, 2011, p. 6). As the linguistic turn showed, language constructs rather than mirrors reality, and rather

than merely transmitting information it is an active, ambiguous, context-dependent and metaphorical way to accomplish things and to constitute the social world (Alvesson & Kärreman, 2000). Communication moreover encompasses more than the linguistic, and many theories overlap and deal with both language, non-verbal communication and interpretation. Some of the more traditional theories of communication take a positivist approach, emphasising processual 'sender-receiver' models based on signal systems and information processing, but those in the hermeneutic tradition for example have criticised these as reductionist, abstracted from context as well as from the people producing and making sense of the information (Littlejohn & Foss, 2011). Kress and Van Leeuwen suggest that communication has only taken place 'when there has been both articulation and interpretation' (G. R. Kress & Van Leeuwen, 2001, p. 8) and other researchers also emphasise the role of audiences in constructing the meaning of messages, discourses or designs according to their diverse values, experiences, abilities and motivations and their social, cultural or temporal place in the world (Crilly et al., 2008; Verganti & Öberg, 2013). Both makers and interpreters have creative agency and engage with signs and narratives according to their own interest and different ways of understanding the world; moreover it is through social interaction and processes of selection, transformation and interpretation that meaning is generated and practices are structured (G. Kress & Selander, 2012). Following the exploration in Chapter 2.2 of psychological and cultural approaches to sustainable consumption, I will briefly touch on these two again in the context of communication.

Sociopsychological communication theories address the behaviour of the individual as a cognitive being, relying in general on the assumption that cognition comes before action, or that attitudes and mindsets must be changed in order to shift behaviours. They are usually based on experimental research, deal with influence or persuasion or describe how people select media, take in information or attach meaning based on their pre-existing beliefs, goals, values and attitudes - and these media choices then reinforce those attitudes in turn (Littlejohn & Foss, 2011). It can be difficult for pro-environmental messages to even be consciously processed by people who do not have pre-existing environmental goals, world views or mental models (see also sensemaking and framing in Chapter 4, Study 1), since these can be assumed irrelevant and filtered out by the attention system (Klöckner, 2015c). Strong messaging, perception of control and the situation of decision-making closely matching the context of the original learning situation are important factors in behavioural outcomes (Klöckner, 2015c), whilst cognitive dissonance explains why people struggle to reconcile conflicting behaviours and beliefs and as a result can downplay the disconnect and avoid uncomfortable information. Although sociopsychological models emphasise the influence of attitudes and cognition on behaviour, they also acknowledge the role of habits, heuristics, routines and mental models on action. Because of bounded rationality and the impracticality of processing huge amounts of information to make small decisions, people resort to 'rules of thumb' such as anchoring, availability and representativeness heuristics, which can skew both their perceptions and follow-on behaviours (Klöckner, 2015c).

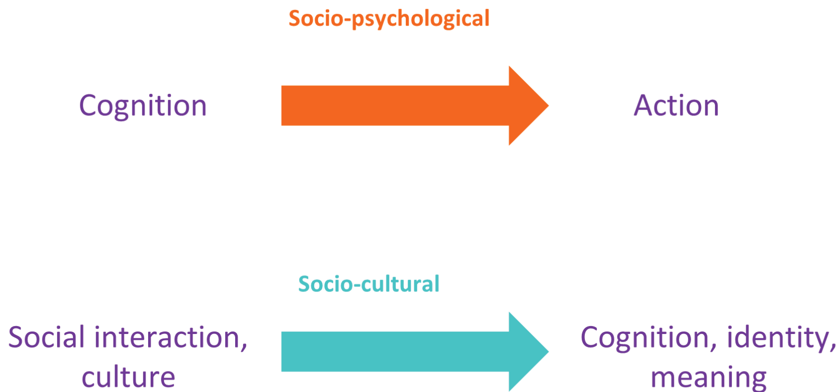


Figure 13: In very simple terms, socio-psychological theories suggest that action is based on mindset or cognition, whereas socio-cultural theories see social interaction and culture as shaping cognition.

The tradition of sociocultural theories of communication on the other hand focus on interactions and relationships rather than individuals, and the social creation of norms, meanings and identities. In contrast to sociopsychological theories they tend to subscribe to the idea that action and culture shape and influence cognition, rather than the other way around (Littlejohn & Foss, 2011, p. 345). Social performances as well as language or texts are ways of influencing, producing and reproducing culture, which in turn influences different forms of communication and embodied practice; emphasis is placed on the importance of context and shared social and cultural resources such as meanings, emotions, norms and self-definitions (Littlejohn & Foss, 2011). Founded on the epistemology of social constructivism, reality is seen as constructed rather than discovered, different groups and cultures create different realities and therefore there is no one objective, discoverable reality as there is with positivist approaches. In this tradition people's self-perceptions lie at the heart of their perceptions of the rest of the world, but the construction of these ideas, their stories, identities and meanings, are created or shaped through social interaction in an ongoing process mediated by cultural contexts and narratives (Klöckner, 2015c). Identity is thus not consistent but dynamic: as in the well-known work of Irving Goffman, people have different 'selves' or roles which they perform like actors on a stage, and these are created over time through interaction with others; for instance a pro-environmental identity may be mediated through belonging to activist or citizen groups (Klöckner, 2015c). In this tradition meanings are socially constructed, providing the basis for understanding and action: the 'social and cultural rules of meanings and action prefigure how we will interpret and act within a situation' (Littlejohn & Foss, 2011, p. 115). Embodied performance, social interactions and adaptation or dynamism are significant in the creation of meaning, culture and identity; action and meanings affect each other reciprocally and are also reciprocally affected by contexts and rules, whilst shared stories can increase social coherence and coordination by providing resources and materials from which people's actions and meanings emerge (Littlejohn & Foss, 2011, p. 213). These issues of meaning and action are also important in the context of design

and warrant a brief exploration of some of the work of design theorist Klaus Krippendorf.

Meaning, action and value

'Humans do not see and act on the physical qualities of things, but on what they mean to them' (Krippendorf, 2006, p. 47)

Many theories from design literature reflect or overlap with those from communications. In describing the predecessors of the so-called semantic turn, Krippendorf also notes the contributions of several other theorists (e.g. Goethe, Maturana, Vico, Uexkull, Gibson and Wittgenstein) who have emphasised the link between human perception, meaning and action (Krippendorf, 2006, pp. 41–46). Together with many of these (such as Wittgenstein and Mead), he aligns with the sociocultural tradition of communication in asserting that meaning is socially negotiated and a result of coordination and collaboration (i.e. action) between people. According to Krippendorf artefacts are also like words, woven through cultural history, involving social coordination and with the new emerging from the old: artefacts, he says, are 'language in interaction' (Krippendorf, 2006, p. 46). He sees the correlation and interconnection of meaning and action as fundamental, accentuating this with his axiom that 'humans do not see and act on the physical qualities of things, but on what they mean to them' (Krippendorf, 2006, p. 47). Meaning therefore has more importance than function in terms of its impact on action, and the advantage of design and of designers, he suggests, is their 'extraordinary sensitivity to what artefacts mean to others, users, bystanders, critics, if not whole cultures' (Krippendorf, 2006, p. 48). Of course, it is not possible to directly observe what things mean to people, and this is where Krippendorf's concept of second-order understanding comes in – i.e. the recursive understanding that designers have of the understandings of the various users of a design or artefact, which must be achieved through questioning and treating people as knowledgeable agents constructing their own worlds rather than relying on privileged observation (Krippendorf, 2006, pp. 66–70).

Krippendorf has five principles or applications of the concept of meaning, which are:

> Meaning is *a structured space, a network of expected senses, a set of possibilities* that enables handling things, other people, even oneself...
>
> Meanings are always *someone's construction*, just as sense is always someone's sense, and, hence, meanings are always *embodied in their beholder*...
>
> Meanings *emerge in the use of language* but especially involving human *interactions with artefacts*...
>
> Meanings are *not fixed*. Human participation in interfaces with artefacts is characterised by *conceptual openness*. Meanings are *constructed* from previous experiences, *expanded* on them, and *drift*, much like imagination does...
>
> Meanings are *invoked by sense*, and sense is always part of what it invokes. Thus, current sense is a metonym of what it means, especially of what one can do in its presence...
>
> (Krippendorf, 2006, pp. 56–57)

Krippendorf is keen to delineate the importance of alternatives, that meaning relies on the perception that something could have been interpreted or used in many possible ways and can be changed and constrained by context. Just as parts of an object become meaningful in the context of the whole, and the whole gathers meaning from the arrangement of its parts, so human meanings emerge through language, interfaces with artefacts and physical interaction (and vice versa). Action creates meaning through sense, and meaning unfolds into action (Krippendorf, 2006, pp. 57–58).

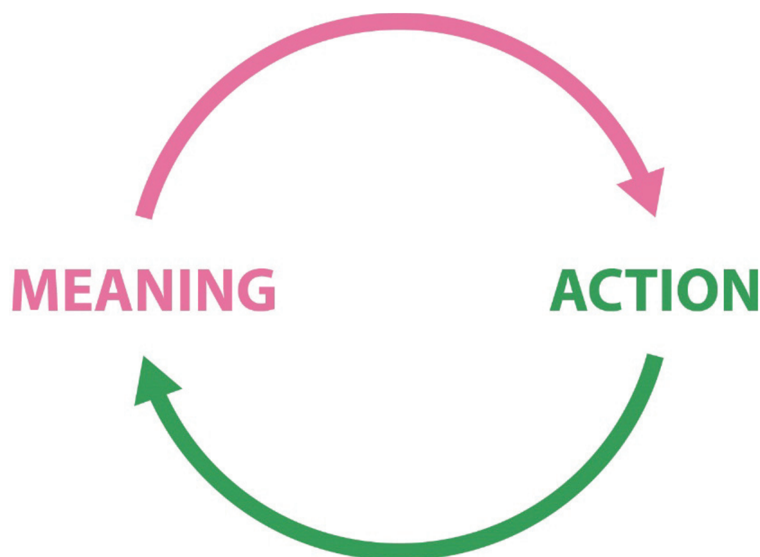


Figure 14: According to Krippendorf, there is a reciprocal relationship between meaning and action

It could be said that Krippendorf's focus on meaning and action encompasses elements of both the psychological and cultural perspectives previously described, in that meaning may represent both something cognitively or emotionally significant to an individual which forms the basis for action, and also the outcome of action which takes place in a social and material realm. This view coheres with work in hermeneutics and systems science, which views human action as flowing from the meaning people attribute to their surroundings; for instance that by Fritjof Capra who defines meaning as one of the four interconnected perspectives of life and shorthand for the 'inner world of reflective consciousness' (Capra & Luisi, 2015a, p. 304) – a concept which appears to point to the more psychological approach of action as stemming from cognition. As both Krippendorf and Capra indicate however, meaning is about the interpretation of context, and this interpretation takes place in the light of internal beliefs, values and concepts as well as external circumstances and cultural norms: 'to understand the meaning of anything we need to relate it to other things in its environment, in its past, or in its future. Nothing is meaningful in itself' (Capra & Luisi, 2015a, p. 309). Finding meaning is essentially a process of sensemaking (see Chapter 4, Study 1), of material interaction (see Chapter 4, Study 2), and particularly when it involves intensely personal relationships may be based on emotional dimensions that bypass the rational altogether (Capra & Luisi, 2015a).

> Meaning is essential to human beings. We continually need to make sense of our outer and inner worlds, find meaning in our environment and in our relationships with other human beings, and act according to that meaning…' (Capra & Luisi, 2015a, p. 309).

In the field of design, meaning is closely linked with value and designers have the ability to create these through their knowledge of users and their needs as well as product or service development and new markets. They are like expert meaning-makers. In collaboration with advertising, branding and sales, design may create myths, cultural values and meanings that are divorced from the original materials of an object yet play a significant and persuasive role in consumption, overconsumption and even 'commodity fetishism' (Julier, 2014, p. 75). Usually design takes the form of commercial or extrinsic types of value, though Heskett and Boztepe distinguish several different dimensions of value such as exchange, use, material, aesthetic, moral experience, sign, intrinsic, utilitarian, emotional and self or other-oriented and active or reactive value (Boztepe, 2003, 2007; Heskett, 2017) and Heskett argues that because of its associations with novelty and consumption design should also be judged on the ethical and cultural consequences which it reinforces (Heskett, 2017).

Although design develops objects' 'capacity' for value and can influence user decisions, the process is dynamic and unpredictable and ultimately it is the user who ascribes and even creates meaning or value through actively engaging in practices and integrating socio-cultural resources (Boztepe, 2007; Grönroos & Voima, 2013; Lupton, 2017). Consumer practices can bring new meaning to a brand or product (sometimes in ways that are unforeseen or undesirable for a company): they are affected by local cultures and contexts, and in turn play a part in shaping future cultural and historical contexts (Hestad, 2009; Hestad & Keitsch, 2009). In this way value may be created through interaction and can change over time; it may be different before and after purchase or during use, and value may also exist in *not* owning something, or in disposing of it (Boztepe, 2003, 2007). These perspectives seem particularly relevant in the context of a circular economy, where the locus of value can shift from owning physical artefacts or things to accessing experiences and relationships and creating new routines or practices through this process (Santamaria et al., 2016). Consumers are thus more akin to co-creators or communicators, with firms providing resources and designers taking the role of facilitator (Hestad, 2009; Hestad & Keitsch, 2009).

In summation

As can be seen therefore, there are multiple different ways in which design can potentially influence consumption in the context of a circular economy. Nudging or controlling people's behaviour through changing their physical environment, providing them with information that seduces them or appeals to their values or appetites, or influencing the relationship that they have with the world around them by attempting to shift existing meanings or interpretations are all examples of ways in which design can be a tool for change. It is also evident through the research on consumption, CE, communication and design that such interventions can take place at many different levels and use a variety of media or methodologies. Cognitive and information-based approaches have often focused on individual responsibility and been used in conjunction with sustainable consumption and policymaking, whilst cultural

approaches have focused on the consumer's different identities and on meaning within a social context, and more recently with the rise in social practice theories have addressed inconspicuous consumption. In a similar way the distinction between sociopsychological and sociocultural theories of communication highlights the different models of cognition and action and with them potential points for intervention or change. The relation between meaning and action in particular, as described by theorists such as Krippendorf, presents a further avenue for investigation or model for change and suggests additional ways in which design can intervene – either to shift meanings or directly restructure action.

Design may be seen as a powerful cultural and communicative tool that has the ability to shape experience, create meaning and value and influence socio-cultural regimes such as those implicated in consumption. It has often been co-opted by commercial interests, yet many researchers have also pointed out its potential for helping to recreate consumption around a more sustainable or circular model. To date there has been little empirical or exploratory research in the field of design that studies circular economy beyond the product level, or that addresses ways in which design and communication can be used to engage with or influence consumers or change patterns of consumption – either through case studies of existing examples or by considering future possibilities for change (Camacho Otero, 2020; Hagejärd et al., 2020; Lofthouse & Prendeville, 2018; Santamaria et al., 2016). Furthermore, despite significant academic focus on the subject of sustainability, including from a consumption perspective, there is less research available on alternative or unintentional entries into sustainable consumption, for instance by 'mainstream' consumers with other priorities and who are not primarily motivated by environmental values (Callmer, 2019); this could be seen as a kind of inconspicuous *sustainable* consumption. This thesis addresses such gaps in the research and builds a case for design as a valuable tool in the transformation of consumption.

Chapter 3: Research Approach and Methodology

With these perspectives on circular economy, consumption and design in mind, different studies were devised to explore the relationship further, including the capacity of different design or communication strategies for engaging people with a circular economy at different levels, the aim being to generate insights and new knowledge that is valuable for design practitioners, CE innovators and research communities as well as policymakers and civil society. The studies combine conceptual, empirical and practice-based methods and explore scenarios at the individual, practice and cultural levels, in so doing attempting to consider a spectrum of design-based approaches. Table 2 gives a broad outline of the focus for the three studies, the level at which engagement occurs, who the 'designer' is and the theoretical framework/s used.

	Study 1	***Study 2***	***Study 3***
Level of engagement	Individual consumer	Consumption practice or 'moment'	Local culture or industry sector
'Designer'	Company or commercial designer	Consumer or user	Public sector or citizen
Theoretical framework	Design for Sustainable Behaviour	Practice Theory	Design Activism and Speculative Design

TABLE 2: THE LEVEL OF ENGAGEMENT, MAIN 'DESIGNER' AND THEORETICAL FRAMEWORK OF THE THREE STUDIES

Study 1 is exploratory and conceptual, making use of existing design frameworks to subjectively interpret circular companies' marketing communications in Study 1a, and then developing the themes of visual communication and narrative engagement in Study 1b. They focus at an individual consumer level. In Study 2 the consumer becomes the designer, and it uses semi-structured interviews and a supporting survey to empirically explore the impact of the KonMari method and changing meanings of possession or relationships with 'stuff' on actual changes in consumption practice. This study focuses at the level of practices or 'moments' of consumption. Study 3 comprises an action-based display that incorporates perspectives from the previous two studies together with speculative and activist design in a 'real life' attempt to engage people with circular consumption. It focuses on local cultural scenarios and participation and moves towards a more integrated, service or systems-based view of consumption, using the case of fashion.

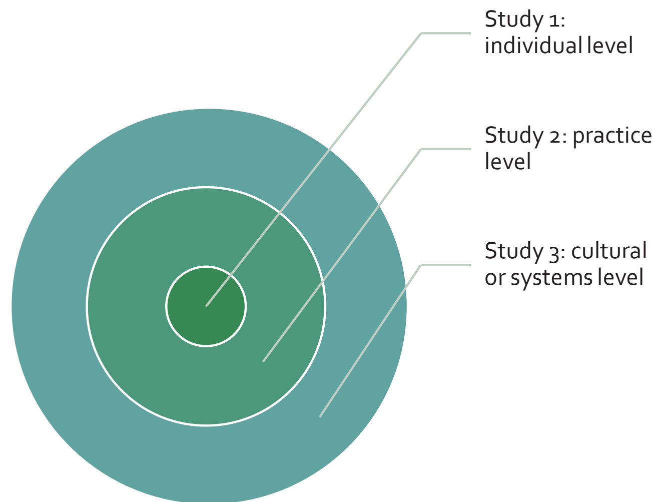


Figure 15: The 3 studies take different approaches to design as a tool for influencing consumption

Whilst not intentionally linear or progressive, each study takes a different and, in some ways, expanded perspective on the use of design as a strategy or tool for engaging consumers with transformation in the context of a circular economy. The first study (1a and 1b) deals with behavioural approaches to change, focused on company marketing tactics and two-dimensional visual or textual information that can engage cognitively with individual consumers using a variety of different tactics. Study 2 changes tack to explore a practice-based approach, specifically the influence that decluttering practices can have on consumption when viewed as a series of moments, and on the meanings that consumption has for people afterwards. Study 3 steps back and takes a more 'meta' perspective, combining some aspects of studies 1 and 2 to create an interactive, culturally focused exhibition that invites citizen participation and combines individual reflection with future projection and speculation.

The research questions for each of the studies are as follows:

Study 1: ***What kind of marketing strategies are currently used by companies attempting to engage consumers with CE, and how can design provide insights or improvements on these?***

Study 2: ***What is the impact of wellbeing (rather than sustainability)-led activities such as KonMari decluttering on consumption meanings and practices?***

Study 3: ***What is the potential for design futures and performance to engage people with circular consumption cultures, and what could future circular consumption look like in practice?***

As well as the frameworks and tools, it is important to understand the philosophical assumptions or beliefs that underpin, inform and enact the research. The following

sections address and elucidate those philosophical assumptions and methodological approaches (Creswell & Poth, 2018), including the use of multiple perspectives (theories and methodologies) in the thesis. I then proceed to describe the research strategies and method for each individual study in Chapter 5. Social constructivist, pragmatic and design-based approaches for instance all suggest that knowledge about the world is continually constructed in different ways and different contexts and that there are multiple ways of designing for a more sustainable society or circular economy; transformation, like research and design, may be a matter of trial and error and experimentation, and it may be necessary to experiment with several diverse approaches before one discovers 'what works' or what is practical and desirable to change.

A Qualitative Approach

Qualitative research is about the interpretation and the transformation of the world, and as such it seemed well suited to the topics of human behaviour, consumption change, communication and design for engagement which are addressed in this thesis. Authors such as Denzin and Lincoln and Creswell emphasise the importance of qualitative research in collecting naturalistic data and in addressing and making sense of the meanings that people ascribe to their social settings or observed phenomena (Creswell & Poth, 2018; Denzin & Lincoln, 2011); this has been applied particularly in studies 2 and 3. Qualitative approaches make use of a wide variety of paradigms, interpretive frameworks and enabling theories, employ both inductive, deductive and abductive reasoning and attempt to establish patterns and themes whilst allowing for contextual discrepancies and the complexity or nuances of different scenarios under study (J. W. Creswell & Poth, 2016; Figueiredo, Gopaldas, & Fischer, 2016). In investigating how culturally-informed approaches such as design may be used to engage people with a circular economy, this thesis accordingly makes use of a variety of paradigms, contexts, theoretical concepts and interpretive frameworks across the studies which, whilst bringing challenges in terms of unification, was seen as important to the exploratory and cross-disciplinary nature of the research and indeed encouraged by the qualitative research paradigm. It is suggested that qualitative approaches build a compelling and engaging storyline, using narrative techniques and creative data displays to give meaning to their accounts (though the journey of revealing the phenomena concerned is often non-linear and unique) (Bansal & Corley, 2012). The final output can include participants' voices as well as the reflections of the researchers, present complex interpretations and descriptions and contain both a contribution to academic literature as well as a normative perspective or bid for change (Creswell & Poth, 2018). In their presentation of the circular economy and sustainable consumption as normative concepts for change, as well as the narrative techniques, creative display and inclusion of participants' voices and reflections, the studies in this thesis are suited to such an approach.

Of course quantitative (rather than qualitative) research has traditionally been used by the natural sciences as well as fields like psychology and economics and those particularly relevant to this thesis such as pro-environmental behaviour or marketing and consumer studies. But quantitative approaches also carry associated risks of stripping away contextual information, not acknowledging the theory or value-laden

nature of facts and even excluding concepts of meaning and purpose (Guba & Lincoln, 1994). Meaning, emotion and nuance are important both for the studies of online communications in Study 1 and the empirical Studies 2 and 3; translating the detailed interview accounts and 'rich text' of Study 2 or even the brief comments left by visitors in Study 3 into quantitative numerical proxies would not have allowed for the colourful narratives and individual stories to come through. Such insights provide additional rationale for making use of a qualitative approach, and indeed for acknowledging a social science perspective in which the interaction of researcher and subject is what creates the findings, rather than these being objectively 'discovered'.

Interpretive Frameworks and Research Traditions

Of course there are many differing interpretations and perspectives on the varying research traditions, and academics have a multiplicity of ways to distinguish them. In this thesis social constructive approaches are combined with transformative and to some extent pragmatist frameworks, with the grouping seen as complementary rather than flawed. As already discussed, qualitative research allows for multiple enabling theories and participant perspectives to be used and acknowledged, and as will be shown below the paradigm of design research within which the thesis is set also supports the deployment of emergent, change-focused strategies which may sit outside conventional patterns of enquiry.

Social Constructivism

People interpret nature and the world through dominant belief structures and views of reality, which in turn have a fundamental impact on culture. In the social constructivist or interpretivist tradition, people are understood to develop 'subjective meanings of their experiences' (Creswell & Poth, 2018) through interactions with others, and these are also influenced by historical, social and cultural norms. The assumption is that reality is socially constructed, but that it then acts upon the actors in return, shaping their practices and assumptions (Belk et al., 2013b). In terms of epistemology, a social constructivist approach can help to acknowledge that people's explanations of activities, materials, facts and phenomena depend on their abilities and methods of explanation and the ways in which they make sense of experiences (Ehrenfeld, 2008; Krippendorf, 2006). Researchers often use inductive (or abductive, see below) rather than deductive techniques and address participants' specific social contexts and concerns. Their interpretations are understood to have been shaped by their own backgrounds, cultural and historical experiences, and so the research is interpretive rather than objective (Creswell & Poth, 2018).

Most of the studies in the case of the current thesis are subject to the interpretation of the researchers involved. In Study 1, although consumer factors and design frameworks were used as a guide or a reference point, the online communications were analysed and their meanings constructed using subjective interpretation. In Study 3, the interviews of the KonMari participants were cross-compared, analysed and interpreted with reference to theories from consumer culture and other literatures. In all of the studies, the researchers brought their existing preconceptions and mental models to the work of understanding and interpretation and the results have inevitably been influenced by these, with for example participants' sensemaking subject to the sensemaking and preconditioning of the researchers, and the concept of

an ultimate truth remaining elusive. Nevertheless, theory, method and investigator types of triangulation (Carter et al., 2014) in the use of multiple theories and methods and more than one investigator in the same studies (for example the co-investigators of the KonMari paper and the different theories and methods used in each) ensured a more rigorous and in-depth understanding of the phenomena and added depth and complexity to the outcome (Denzin, 2012).

The constructivist perspective aims to understand and reconstruct people's understandings of the world and emphasises that findings are constructed and created through interaction during the enquiry. This may be seen particularly in Study 2, in which a semi-structured interview guide led to unplanned questions arising from the answers given and the interview evolving rather like a conversation in which the outcome is constructed by both parties. According to Guba and Lincoln the inquirer can be seen as a facilitator and a participant, and even activism and advocacy can constitute part of the social constructivist approach (Guba & Lincoln, 1994). Although the current research did not involve overt participation or activism on the part of the researcher, and facilitation was the main role played in Study 2, it could be said that Study 3 provided opportunities for all of these to some extent: the researcher both facilitated the exhibition and participated in its development and deployment, and the exhibition itself represented an opportunity for activism and advocacy: promoting the concept of a future consumer who follows the model of a circular rather than a linear economy, and encouraging visitors to rethink their own ideas and behaviours when it comes to the clothing cycle.

As Lofthouse and Prendeville argue, a more social constructivist approach can take into account the provenance of design as a 'radical humanist paradigm' which considers context, complexity and nuance and is oriented towards influencing the future of society (Lofthouse & Prendeville, 2018). In terms of moving towards a circular economy, it therefore seems to provide a good basis for integration with transformative and pragmatist frameworks, both of which can be seen as normative lenses that allow for research focused on real-world change.

A Transformative framework

Transformative research goes further than social constructivism in acknowledging the non-neutrality of knowledge and the power structures within society, and in focusing on ways to improve the experience of humanity, or more immediately the lives of participants – particularly marginalised or oppressed groups (Creswell & Poth, 2018). In constructing knowledge there is also an agenda for action or change, and often the research happens in collaboration with the participants. The emancipatory bent of transformative research places it within the critical tradition (Belk et al., 2013b), a perspective that aims to critique and transform society and its structures by identifying assumptions or power play and making people aware of their conditions of oppression in order to help alleviate them. In the case of transformative environmental sustainability research, it could be suggested that researchers should also think in systems beyond the immediate bounds of their studies to include beneficiaries such as marginalised or mute non-human groups like animals, plants and ecosystems which are unable to speak for themselves. Of course the studies in this thesis are concerned with people or consumers and a better understanding of the designs or

communications or activities which engage them, rather than with the emancipation of oppression or with the natural world directly. Nevertheless, it is important to acknowledge that these things are interrelated, and that engaging consumers with more ‘circular’ or sustainable ways of acting could have important repercussions in terms of releasing pressure on (and the oppression of) ecosystems and distributing resources more evenly; a transformative framework may therefore provide a useful background context to the studies, as well as being of more direct relevance to Study 3.

Transformative research is also known as participatory action research (PAR), an emancipatory perspective that aims to investigate and then change or transform reality for the better, freeing subjects from oppressive power structures (Atweh et al., 1998; Creswell & Poth, 2018). It is critical, often undertaken collaboratively and requires researchers to be reflexive – for instance through learning by doing or using the ‘self-reflective’ spiral of plan, act and observe, reflect, plan (Atweh et al., 1998). In PAR ‘knowledge arises in and for action’: reality is constructed, not in the mind but through the reflective actions of people and communities, and the primary aim of such an inquiry is ‘a change in the lived experience of those involved in the inquiry’ (Reason, 1994, p. 333). Action research thus enables people in particular settings to participate actively in the research process about them, and also steers the research towards the improvement of participants’ practices and settings (Kemmis et al., 2014). Study 3 in particular takes a more directly transformative and participatory approach, for instance making use of Design Activism to create a normative exhibition display and inducing self-reflection both in the researchers’ process for designing the module and in the module itself to try to induce action, learning and change in the participants.

Study 3 and the Future Consumer exhibition may also be seen through a lens of performative research, which Haseman suggests as an alternative to the quantitative or qualitative paradigms and within which practice-*led* research provides a method (originating in creative communities and different to practice-*based* approaches) which is ‘intrinsically experiential and comes to the fore when the researcher creates new artistic forms for performance and exhibition’ (Haseman, 2006, p. 100). Rather than necessarily having a central ‘problem’ or research question, practice-led research (also known as research through practice, performance as research or practice as research) tends to shake off these constraints and eschew strict methodological requirements in favour of diving in and seeing what emerges. Instead of translating and perhaps constricting research outputs to written form, practice-led researchers also assert the primacy of the experience itself, be it through dance, music, gaming or any other form of practice (Haseman, 2006). In such a way the research and preparation for this exhibition had a variety of starting points, briefs and constraints, with the idea of incorporating future visions of circular clothing with current-day scenarios and reflections, a familiar and localised context, the wider brief for the festival and the findings from the previous studies. It could also be said, rather than being written into a series of journal articles or briefing notes, that the exhibition itself *was* the research, and its ongoing existence as a place of learning and practice in Trondheim’s *Vitenskapsmuseet* pays homage to such a perspective. Research in this paradigm invites performance and, echoing the design concept of multimodality, may be presented as materials, images, sound, symbols or action rather than merely in

verbal form (Haseman, 2006; G. Kress, 2014). Indeed the Future Consumer module was both a culmination of previous research presented through tactile, visual and verbal modes (e.g. visual rhetoric and storytelling from Study 1 and material interaction and reflection from Study 2) as well as a form of action-based research in itself with outcomes that have emerged and extended beyond the life of the festival.

A note on Pragmatism

Some researchers argue that the modern reliance on positivist Cartesian ideologies, theory and rational action has led to a loss of consciousness and hence sustainability, and cite Pragmatism as an alternative which instead emphasises experience over theory and finds truth in reflection and awareness (Ehrenfeld, 2008). According to Creswell and Poth, a pragmatist approach to research is not tied to one particular philosophy or view of reality but rather focuses on 'what works' and gives researchers 'freedom of choice' to select their own techniques based on the requirements of the situation, often combining multiple methods of data collection and analysis in order to focus on practical implications and the best way of answering the research questions (Creswell & Poth, 2018, p. 28). Pragmatist research thus veers away from questioning the nature of reality and our understanding of it, in favour of focusing on the contexts and intended consequences of the research. I make this note here in order to further support the use of multiple frameworks and methods in the research and the exploration of consumption change from several different angles and through different lenses of design.

A Design approach

Although 'Design' is not a research methodology or framework per se, it may yet be seen as an interpretive philosophy that fits well with those described thus far (and with a thesis about human behaviour change for a circular economy) in its focus on 'real-world' transformation. Design denotes an attitude and a process as well as a field or outcome: it is empathic and human-centred (Kimbell, 2011), it allows of experimental and exploratory as well as traditional and practice-based methods (Fallman, 2008) and it can address the situated, real-life experiences of citizens (Spaargaren, 2003) for instance by suggesting interventions in a scenario with the aim of making an improvement (Chick & Micklethwaite, 2011). It is an approach that focuses on user experience, on democratisation and participation, on creating persuasive communications and the shaping of behaviour as well as form. In the 1990s Christopher Frayling at the RCA distinguished between research *into, through* or *for* design (Frayling, 1994), and both before and since there have been many attempts to categorise design methodologies. In its use of design process as a means of inquiry with the potential to transform the world from current to preferred states, research *through* design (usually through the creation of prototypes) enables researchers to address complex problems, assess the impact on people of future technologies and create new knowledge through the application of design practice (Blythe, 2014; Zimmerman et al., 2007). This is the approach which was taken in Study 3.

The practice of design often involves intangible, iterative, reflective and 'messy' processes of synthesis or sensemaking which have come to be known as abductive (as opposed to inductive or deductive) reasoning, or 'designerly ways of knowing' (Cross, 1982). Abduction allows for creative problem solving, for elements of the researcher's

personal experience as well as intuition or inference to be incorporated into the process of synthesis, and for the creation of new insights or knowledge (Kolko, 2010). Methods such as concept mapping, reframing and insight combination are all examples which make use of abductive reasoning to create new insights through processes of judging, prioritization and forging connections (Kolko, 2010) – and these strategies were particularly relevant in studies 1 and 3. According to Timmermans and Tavory, abductive analysis borrows much from inductive approaches such as grounded theory (e.g. in encouraging processes of defamiliarization, revisiting data and alternative casing) but emphasizes that instead of trying to set aside preconceived theoretical ideas, the researcher should rather be equipped with 'the deepest and broadest theoretical base possible' and develop this base during the research process (Timmermans & Tavory, 2012, p. 180). Often associated with Charles Peirce, abductive processes make use of inference, insight and conjecture in the explanation of phenomena or creation of new hypotheses, providing perhaps less certainty but more innovation; abduction allows for concepts to be reconfigured or combined in new ways, and human instinct to be seen as a basis for truth (Timmermans & Tavory, 2012).

In a bid to follow such methodologies, combining concepts in new ways, working with real-world contexts, making use of a wide theoretical base and developing this during the research process, I now hone in on the individual studies and first further develop the theoretical background to each one.

Chapter 4: Background to the studies

This chapter provides additional background material to that in the appended publications, and specifically describes and expands upon several different theories, concepts, approaches or strategies related to design and communication, sustainability and consumption.

Study 1

The papers in Study 1 explore consumption change at the individual consumer level, using the theoretical approach of Design for Sustainable Behaviour and also investigating theories of marketing, storytelling and sensemaking to answer the research question.

RQ: ***What kind of marketing strategies are currently used by companies attempting to engage consumers with CE, and how can design provide insights or improvements on these?***

Design for Sustainable Behaviour

Design for Sustainable Behaviour (DfSB) is an emergent body of research which integrates insights from sociopsychological theories with design approaches, and aims to identify the driving (or blocking) 'factors' behind individual behaviours in order to understand users and design products, systems and services to encourage more sustainable use – or prevent unsustainable use (Boks, 2018; Pettersen et al., 2013). Its focus is on the individual actor as a rational and often irrational decision maker who is affected by habits, beliefs, norms, values and attitudes as well as contexts and other influencing factors.

Most commonly DfSB research utilises a taxonomy or 'axis of influence' which shows a spectrum of control in decision-making moving from the user at one end to the product at the other (see Figure 15) (Lilley & Wilson, 2017; Zachrisson & Boks, 2012). When feedback or informational strategies are used then the user retains most control, but forcing or determining strategies (such as speed bumps) place the product in control. Between these two extremes persuasive or behaviour steering strategies use strategies such as scripts and affordances to guide or influence interaction and shape behaviours (Lilley & Wilson, 2017). It can be difficult for designers to know which strategy to select and which behaviour to target in a given circumstance, but for example if a user is more in agreement with a behaviour it is easier to use an informational approach; more obtrusive strategies can be used for disrupting more habitual or context-driven behaviours, and feedback or informational approaches for more reflective behaviours (Zachrisson Daae & Boks, 2014).

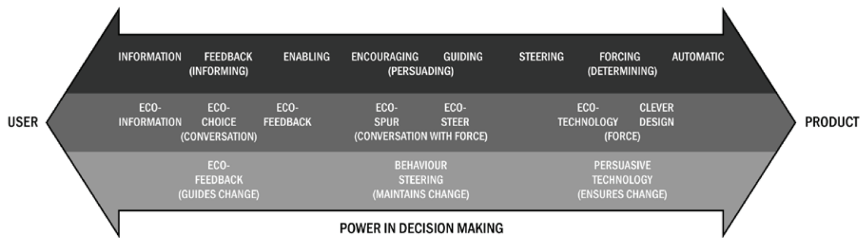


FIGURE 16: THE AXIS OF INFLUENCE (LILLEY & WILSON, 2017 FIGURE 3) (BASED ON LILLEY, 2009, TANG AND BHAMRA, 2011, ZACHRISSON AND BOKS, 2012)

There are several models of DfBC (such as Fogg's Behaviour Model) which may and have been utilised for DfSB purposes, but two of the best known in the world of design are the Dimensions of Behaviour Change (see Table 3) (Zachrisson Daae & Boks, 2014) and the Design with Intent method (see Table 4) (Lockton et al., 2010). Likewise several empirical studies have examined consumers' acceptance of PSS or refurbished products (see table in Paper 1 or Results section) and the potential for design to influence this (Antikainen et al., 2015; Weelden et al., 2016).

Control	To what extent is the user or the product in control of the behaviour?
Obtrusiveness	How much attention does the design demand from the user? On a scale from obtrusive to unobtrusive.
Encouragement	To what extent does the design encourage desired behaviour or discourage undesired behaviour?
Meaning	How does the design motivate the desired behaviour, on a scale from emotional to rational?
Direction	Is the desired behaviour in line with, or opposing the wishes of the user?
Empathy	Is the design focusing on the user or on others/what others think?
Importance	How important or unimportant does the user consider the behaviour/ consequence?
Timing	Does the user encounter the design before, during or after the behaviour?
Exposure	How frequently or rarely does the user encounter the design?

TABLE 3: THE 9 DIMENSIONS OF BEHAVIOUR CHANGE (ZACHRISSON DAAE & BOKS, 2014)

DwI Lens	DwI Pattern	DwI Lens	DwI Pattern
Perceptual	Colour associations	Cognitive	Emotional engagement
Perceptual	Metaphors	Cognitive	Framing
Perceptual	Mood	Cognitive	Expert choice
Perceptual	Prominence	Cognitive	Provoke empathy
Perceptual	Transparency	Cognitive	Rephrasing and renaming
Perceptual	Similarity	Cognitive	Scarcity
Machiavellian	Anchoring	Cognitive	Social proof
Machiavellian	First one free	Cognitive	Personality
Machiavellian	Worry resolution	Cognitive	Reciprocation
Ludic	Rewards	Cognitive	Assuaging guilt
Ludic	Storytelling	Interaction	Tailoring
Ludic	Playfulness	Errorproofing	Choice editing
		Architectural	Simplicity

Table 4: The 25 Design with Intent patterns that were identified in Study 1a as being relevant to digital marketing and communications (Lockton et al., 2010)

Authors such as Piscicelli have advocated the use of behavioural change strategies to increase consumer acceptance of a circular economy (Piscicelli & Ludden, 2016), whilst Design for Sustainability (ie rather than Design for Sustainable Behaviour specifically) has been investigated from the perspective of a CE and certain new frameworks suggested, e.g. that by Moreno et al. (Moreno et al., 2016). One study by Wastling et al. goes beyond product and business model strategies to explore the role of users in a CE, and comes up with a Model of Circular Behaviour that suggests desired behaviours for users or consumers of CE business models (Wastling et al., 2018). Of course it is far from clear as to whether such strategies are appropriate for a CE context or not (Wastling et al., 2018) and moreover DfSB has largely focused on energy reductions and individual-level changes, whereas CE may require a more collective and coordinated approach. Some researchers have argued for a more holistic, systems-based approach (Moreno et al., 2016): if a user's requirements are met through a more circular context, for example, there is no need for actual changes in behaviour.

Certain authors, for instance some from the field of social practice theory (see Study 2), have taken a critical view of the application of behavioural strategies in the field of sustainability, and in particular of any attempt to combine a behavioural with a practice approach (Kuijer & Bakker, 2015). Moreover the implementation and evaluation of real-world DfSB solutions is limited and there are dangers that focusing on the individual level can risk rebound effects at a larger scale, or that user resistance may be encountered; there are also potential risks that behavioural change happens only when people are observed, that habits may trump intention, and both of these can be overruled by external contexts (Lilley & Wilson, 2017; Piscicelli & Ludden, 2016). Likewise DfSB-type interventions may only be feasible in the short term (Lockton et al., 2008), and a narrow focus on specific use scenarios may result in the potential for wider, more systemic changes being missed (Wastling et al., 2018). Finally using certain (eg extrinsinc) behavioural drivers risks reinforcing unhelpful values, and of

course the ethics of coercion or manipulation and libertarian paternalism also raise questions for DfSB (White, 2013). As a field of design which deals with behaviour change in the context of sustainability therefore, it is suggested that DfSB could benefit from and be enriched by drawing on consumer, marketing and communications research and by acknowledging more explicitly the influence of culture in the behaviour of users and consumers (Zachrisson Daae, 2017). Marketing has long been recognised as a tactic for encouraging certain consumption behaviours, and it seems important to understand it and to explore its potential in more detail.

Marketing and sustainable consumption

Consumer culture theorists such as Baudrillard and Bourdieu recognise the influence of marketing and the media in the construction of consumption through norms, sign value, taste and social differentiation, although debate still remains over how far for instance tastes are routinised unthinkingly according to culture and background and how far people make conscious choices. As a primary method of meaning creation and reorientation, with the potential to disrupt or reframe habitual associations using cultural codes, marketing is similar to design (Santamaria et al., 2016). Marketing and product development can be seen both as the identification of real if unarticulated needs, a 'neutral tool' in the service of sovereign consumers, and as a 'prime mover' in the generation of false needs through the creation of obsolescence for the benefit of producers and other powerful groups (Kjellberg, 2008; Moisander et al., 2010) (a debate which has lasted for many years in the field of marketing research).

Market activity may be described as constituted by performative exchange, representational and normalising practices, and as well as being strongly influenced by behavioural approaches marketing researchers may use socio-technical, social practice or Actor-Network theories to analyse the shaping of markets themselves (Kjellberg & Helgesson, 2007). According to researchers such as Moisander and Alvesson, marketing and branding can be seen as a form of 'government' which leads, guides or directs behaviour by shaping the identity positions, desires and sign values available to consumers. It works by structuring the possibilities for action rather than directly forcing people to act in a particular way, for instance by proposing identities or ways of being, with the aim of having consumers engage in self-government: 'it is not about forcing people to do something against their will, but rather, about structuring their possible field of action to generate sales' (Moisander et al., 2010, p. 74). Marketing thus aims to create 'active consumers' whose identity projects, conduct and goals also conform to the interests and objectives of the brand or marketer. Through various practices it connects consumption with the identities and everyday activities through which people construct and direct their worlds, yet it also facilitates the purchase of fashion objects for the sake of newness, and the pursuit of affluence through empty promises (Alvesson, 2013).

Marketing governs and influences consumer behaviour through visual images, spatial arrangements, artefacts, technologies, strategies and planning, segmentation practices and the provision of identities and lifestyles. Visual imagery, for example, provides cultural narratives, norms, standards and interpretive resources for sensemaking (Moisander et al., 2010), though it should be noted that measuring consumers according to traditional marketing strategies such as pre-determined demographics

can also influence behaviours (Kjellberg & Helgesson, 2007). Critically, Evans points to the role of branding and 'cultural intermediation' (e.g. design) in enabling and shaping the moments of consumption, for instance built-in obsolescence and advertising and marketing practices which prompt the regular devaluation, divestment and disposal of the old and acquisition and appropriation of the new (Evans, 2018) (see Study 2 for more on the consumption 'moments'). The sophistication of advertising and the rise of the 'experience economy' has also seen emotions compete with information as a means to engage people and create new markets (Julier, 2014, p. 204).

Marketing practices, as might be expected, have also been accused of creating ever greater numbers of over-consumers and fuelling over-consumption by expanding capitalist market activity such as price and competition to all areas of social life (Kjellberg, 2008). According to Solér, market norms have eroded social and traditional norms, encouraging people to construct identities using brands and products as anchors – to overconsume, and then to consume again as a coping mechanism (Solér, 2018). As Moisander puts it, marketeers 'influence consumer choice by shaping and modifying the ways in which it is possible for consumers to see and visualize specific objects, actors and marketplace realities in particular contexts'; in such a way they are also able to 'produce and sustain particular views of social reality and normal practice that are not necessarily in line with the objectives of sustainable development' (Moisander et al., 2010, p. 75).

Eco labels and voluntary standards are performative marketing and branding devices which shape markets and can influence outcomes, but some research has shown that consumers tend not to read or understand them, that information alone is not influential enough, and that they can equate merely to greenwashing (Solér et al., 2017). Green marketing moreover has tended to adopt 'soft sustainability' tactics, substituting one product for another without addressing the foundational issues associated with overconsumption, whilst green and social marketing literature has assumed a heroic role for the individual consumer in buying green products which has been shown to be problematic (Middlemiss, 2018; Moisander et al., 2010). As explored in Chapter 2.2, other identity concerns may be stronger and so concerns about sustainability can be silenced by identity marketing (Solér et al., 2015); moreover marketing practices do not seem to have quelled people's concerns that sustainability involves giving up personal benefits and settling for less in order to benefit the environment (Santamaria et al., 2016).

Green marketing can be a matter of preaching to converts whilst the mainstream remain unaffected – and thus it may be necessary to move away from the 'eco' codes which are traditionally used to label and sell sustainable products and to provide the sustainable or circular innovations of the future with new meanings that appeal to a much wider, more mainstream group (Santamaria et al., 2016). Hurth sees marketing as a tool for governments and NGOs as well as corporate entities to shape sustainable identities by creating links between and aligning affluent identities and sustainable consumption choices, ultimately generating value and even paradigm change (Hurth, 2010), whilst McDonald et al. suggest that it may be most useful to focus on consumers' competing or paradoxical priorities and identities and on the social and cultural norms, media, values and ultimately the subconscious heuristics and routines

that influence their daily activities and decisions (McDonald et al., 2006). Sustainability marketing has also been accused of lacking emotive appeal and relying erroneously on facts and rational responses, whereas using happiness and tapping into emotion (i.e. as in conventional marketing) could establish a more positive connection and uptake from consumers (Sääksjärvi & Hellén, 2013; Santamaria et al., 2016). The last word goes to Kjellberg, whose admonishment to 'environmental moralists' and 'morally lax marketeers' still rings true:

> Shape up! If environmental moralists are serious about their quest, then they need to reconsider how they have been going about it so far. The suggestion that they need to become more seductive... is only the tip of the iceberg. The devices at work in performing consumer society operate at multiple levels and with considerable cunning; they need to be appropriated in the construction of alternative compelling narratives... Similarly, marketers need to recognise that their increasingly sophisticated practices have consequences on value scales beyond sales figures. The *give-them-what-they-want* school of marketing theory and practice... will not continue to provide absolution for evermore-invasive procedures. (Kjellberg, 2008, p. 163)

If new forms of consumption are to be effectively marketed as part of a CE, then people's identities, conflicting priorities, norms, narratives and emotions need to be taken into account; it seems useful therefore to take a closer look at the ways in which decisions and actions and the ways people make sense of the world around them are based on cognitive frames, emotions and meaningful biases rather than rational deduction or logic.

Sensemaking and framing

'Systems change is not about fixing the system. It is about sense-making. The fixing will happen by happenchance, not direct correctives... but only when the interdependencies come into view.' (Bateson, 2019)

> ...The world does not present itself directly in its 'raw form'; rather, individuals actively construct it using available cognitive frames that ground their perceptions, thoughts and behavioural actions (Cornelissen et al., 2014, pp. 699–700).

This process is often called 'sensemaking'. Cognitive frames are bundles of associated meanings, emotions and understandings that have been built up through experiences and associations (Chong & Druckman, 2007). Often used in communicative practices and activated or 'primed' by language and metaphor, frames are 'cognitive structures or interpretive schemas that filter what we see and influence how we make sense of the world' (DeLaure, 2018, p. 364). They can include associations between values, concepts and metaphors that quickly and simply evoke complex ideas, and people carry these normative frameworks or models in their heads of how things are or should be, using them to assign blame, impose order or boundaries and provide mental short cuts or 'meaningful 'bundles' of concepts' through which new experiences or information can be interpreted (Public Interest Research Centre, 2011, p. 38). Repeated exposure embeds frames, and they can be seen as ways of engaging and reinforcing values (Public Interest Research Centre, 2011). According to Benford and Snow, frames help

to make events meaningful, organising and contributing to comprehension and action (Benford & Snow, 2000). Media and public policy agendas may connect with the cognitive and cultural frames or mental models of an audience and reinforce (or clash with) these through the way in which they use metaphors and images or structure and tell a story (Littlejohn & Foss, 2011).

Cornelissen et al. suggest that language, prior experiences, emotion and material contexts or material anchoring all contribute to the process of sensemaking, the construction of meaning and the enactment of behaviour, and that this interaction of communications, emotions and materiality can guide, reinforce or constrain the cognitive frames (Cornelissen et al., 2014). At times, the prompting of or commitment to certain cognitive frames may overrule people's capacity for reflective thought, and they are therefore guided by these frames which provide a lens for action and interpretation (Cornelissen et al., 2014), rather like mental models. Individual frames can escalate into collective beliefs through emotional expression and 'contagion'; social sensemaking may then trump individual expertise and direct the reading of material cues. Nevertheless individual, embodied actions do not simply express the previously held cognitive concepts but actively construct these in real time (Cornelissen et al., 2014) – an important point in the context of the ordering of thought and action, and in light of previous discussion around meaning and action.

According to Krippendorf, 'design is making sense (of things)' (Krippendorf, 2006), and designers have also been called 'expert sensemakers' for whom material objects are prompts which can 'engender dynamic and creative inferential thought...' (Cornelissen et al., 2014). Material cues can be generative, and perception can be thought of as what people actively 'do' rather than what happens to them, as they seek out a few meaningful things amongst a sea of possibilities and use frames to predict what will happen: 'we tend to see what we are looking for' (Lupton, 2017, p. 115). Design projects are thus brought to life by physical and visual movements and tensions, and what people experience as memorable in a pattern, poster or page can also depend on what is omitted or left ambiguous (Lupton, 2017).

Theories of persuasion propose that communicators or designers should frame the desired actions in terms of a person's values (Cialdini, 2009; DeLaure, 2018). Rhetoric, for example, is the tactical art of word design and oratory, and one of its most important principles is to know the audience. It also makes use of ethos (credibility), pathos (emotional appeal) and logos (presentation to aid comprehension) and other tropes like metaphors (linking unfamiliar ideas to create new understanding) and identification (creating a sense of 'we' amongst diverse groups and individuals) (DeLaure, 2018). Visual rhetoric uses graphical and textual devices to persuade the audience of a particular message (Moys, 2017), for instance when advertising uses word play, clever arrangement or puzzlement to gain attention and engage the audience (Cook, 2001; Jansen, 2017). These concepts and their potential for engaging people through visual representation are explored in more detail in the conference paper in Study 1b, as are storytelling and narrative – intrinsically human ways of engaging and relating, and which I now turn to.

Storytelling and narrative

'If we change our stories about the world, then and only then can our patterns of behaviour shift' (Ehrenfeld, 2008, p. 98).

Human beings need stories more than facts. Stories have been described as one of the most important aspects of human everyday existence, consisting of 'structured sequences of imagery' that comprise the most natural way of describing almost all the occurrences of life (Booker, 2004, p. 2). Everyone is the central character of their own story (J. Harris et al., 2018). People tell stories, read them, watch and listen to them, navigating the world through the creation and discovery of patterns, story structures that have evolved along with humans to pass down values and knowledge and help the species thrive. By loading words and symbols with moral messages or larger narratives, networks of association can be activated and social relationships transcended (J. Harris et al., 2018). Stories teach, entertain and help people to understand things, giving them insight into alternative viewpoints and to different ways of being in the world. Ideas and beliefs are carried through stories and good storytellers can trigger feelings and emotions, bringing characters and settings to life (Cormick, 2019; Lupton, 2017). The narratives which people create and tell themselves, or which emerge within society, influence both their own self-perception and connect them to others in time and place. By projecting meaning onto random experiences in order to make sense of the messiness of life, their brains link different events, create patterns and attribute causality and in the process they also make their own lives into narratives. Stories are therefore pervasive, shaping people's worlds through these personal narratives of hope, failure and identity, and can be influential factors in the way in which decisions are made and lives lived (Hopkins, 2019).

Academic studies including several from neuroscience suggest that people's brains are 'wired' for stories: they activate the amygdala and memory centre in the hippocampus 'in sync' with the story and allow people to *experience* a narrative rather than just ingesting information through factual text or bullet points (Cormick, 2019; J. Harris et al., 2018; Hopkins, 2019). Stories can thus make concepts more engaging and familiar and people more receptive to certain messages, eliciting emotion and holding attention in a far more successful way than data would by itself (Cormick, 2019; DeLaure, 2018). This technique may be used for instance by marketeers, who can make a product far more enticing or interesting by using narrative to create emotive connections to it, hooking the imaginations of users or consumers and inviting certain actions or behaviours (J. Harris et al., 2018; Lupton, 2017). According to Booker, people's passion for stories stems from the human capacity for imagination, the ability 'to bring up to our conscious perception the images of things which are not actually in front of our eyes' (Booker, 2004, p. 3). Words trigger pictures in the mind, and people are able not only to recall things they have experienced but also to imagine things that have never existed. Storytelling is thus a way of making fantasy or imagination into reality, making the strange seem unremarkable and the extraordinary commonplace (or vice versa).

Certain story forms appear to be ubiquitous throughout diverse geographies and cultures all over the world and it is suggested, following Freud, that some myths and stories are related 'to the very basis of the way we unconsciously perceive the world:

to the inner patterns of our psychic development as individuals..' (Booker, 2004, p. 11). Most stories involve a hero and a mission, a challenge or conflict and an antagonist, various stages of emotion and a resolution, and seem to follow the trajectory laid out in Joseph Campbell's well-known representation of the Hero's Journey (Booker, 2004; J. Harris et al., 2018; Lupton, 2017). Whether verbal or visual, narrative is driven forward by change or disruption in the plot, as people instinctively look for novelty or surprise as shifts that could mark a source of danger or delight (Lupton, 2017).

Designers also make use of 'storytelling' tools (narrative arc, storyboard, scenario planning, colour and emotion, gestalt, design fiction, symbols and metaphors etc) to engage emotions, illustrate facts, allay uncertainty or influence opinion and ultimately come up with new creations (Lupton, 2017). Both narratives and designed artefacts are human creations, cooperative constructions that require both an author or designer and an audience or users, involve second-order understanding and enable people to make sense of their worlds (Krippendorf, 2006). Much fiction writing has shown the significance of material objects in providing meaning to everyday lives, as stories enable people to explain things, to explore and design their worlds. As Lupton puts it,

> exchanging energy – not just transferring data and facts – occurs whenever a product is used, or an image is seen, or a game is played. That energy comes from the dynamic, world-making relationship between creators and audiences, between makers and users (Lupton, 2017, p. 12).

Nevertheless, stories can be inauthentic, reductive and even tell lies – and for many people, changing the narratives that they tell themselves can be extremely painful. Stories tend to weave events into a neat narrative, whereas the nature of experience is fractured and episodic: the patterns people seek often break, leading to intrigue and frustration (Lupton, 2017). Stories are often political, rarely value-neutral, and always informed by the worldviews of the audience; even natural scientists must now tell stories that will play well with media, notwithstanding the risk of skewing the supposed objectivity of the scientific process (J. Harris et al., 2018). As Alexander Nix of Cambridge Analytica cynically put it, things don't have to be true as long as they are believed (Graham-Harrison et al., 2018).

When it comes to narratives of climate change, there are many metaphors (e.g. 'fighting' climate change, 'saving' the planet) which can unhelpfully reinforce the sense of 'us' versus 'them'; the word 'consumer' also seems to activate particular metaphors and values connected with money, and people who think of themselves as consumers rather than citizens have been shown to reduce their support for environmental causes (Andrews & Crompton, 2018). According to climate change communications expert George Marshall, effective communication about environmental topics requires authentic, trusted communicators as well as good narrative; facts and figures are often ineffective, as people can select these to support their pre-existing point of view, and negativity also has little effect as reporting disasters and impacts which feel distant in terms of time and geography are unsuccessful when it comes to changing attitudes (Marshall, 2018). Former UK IPCC representative Professor Chris Rapley became so frustrated with the lack of public engagement with climate science that he co-wrote and starred in a play at a major

London theatre to get the message across (Rapley, 2018); both he and Marshall suggest that new narratives are needed that are engaging, meaningful, hopeful, actionable and experiential – based on such things as shared values, co-operation, place and home and the joy of belonging, rather like those which were used to instil a common sense of purpose in World War II. As well as providing social cohesion, stories have the possibility of using a variety of media to 'give people a visceral sense of what a positive future would sound, taste, feel and look like' (Hopkins, 2019, p. 119) and can be both a way of making a more positive future seem real and actionable and a way of pushing back against despondency and pessimism.

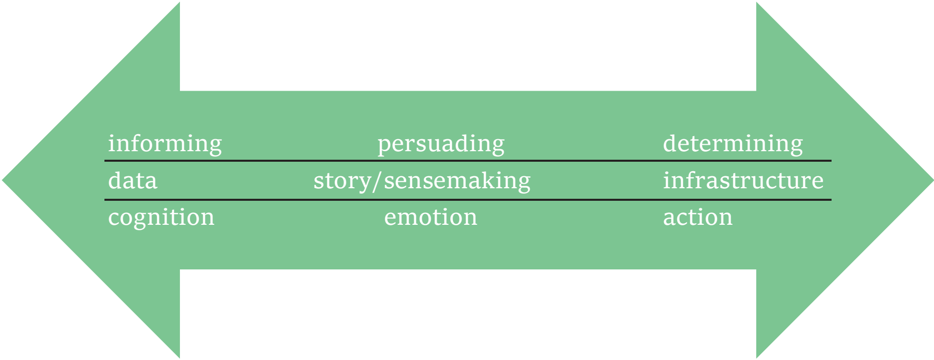


FIGURE 17: AN ADJUSTED AXIS OF INFLUENCE CAN HELP TO CONCEPTUALISE THE POSITION OF STORY AND SENSEMAKING IN GENERATING EMOTION AND PERSUADING, YET NOT INVITING ACCUSATIONS OF PATERNALISM BY FORCING, ACTION (C.F. FIG. 16)

Chapter 5 and the papers make these background concepts more clear in the context of the studies; nevertheless it seems important to note the significance of emotion in communicating with and engaging people with action in ways that may be more powerful than through cognition alone. People make sense of the world and act according to their own meanings and frames and, as Kjellberg intimated, those concerned with sustainability and CE need to develop a more skilled grasp of the stories and narratives that influence norms and assumptions and drive behaviour rather than taking an overly moralistic perspective. DfSB is largely influenced by behavioural and socio-psychological theory and located at the individual level, but for instance in the lenses or dimensions it also allows for variety and nuance in terms of the diverse ways in which users may be engaged through design – many of which act by prompting emotion or resonating with what is meaningful to people. The concept of engaging with mainstream consumers through something that is meaningful to them such as their own wellbeing, rather than by communicating directly about CE or sustainability, is addressed in Study 2, whilst the connection between design, imagination and action is expanded upon in Study 3.

Study 2:

In Study 2, the paper uses concepts from design, material culture and social practice theory to explore the impact of material interaction on the reorientation of meaning, and the potential for engaging with mainstream consumers through concepts such as wellbeing rather than sustainability or CE.

RQ: ***What is the impact of wellbeing (rather than sustainability)-led activities such as KonMari decluttering on consumption meanings and practices?***

Materiality, design and social practice

The field of design is increasingly concerned with social practices and how these change or evolve (Camacho Otero, 2020; Pettersen, 2015; Pettersen et al., 2013; Shove, 2003; Shove et al., 2007). Practice theory was originally intended, for instance in the structuration theory of Giddens, to overcome the dichotomies of agency-structure and psychology-technology; agency is distributed, routines are emphasized, with practices seen as both 'entities' and 'performances', dispersed and integrated:

> Social practice theory gears attention towards the shared ideas about normality that guide and are reproduced and changed in (interrelated) bodily routines. Such a perspective helps capture the systemic interplay between humans, technologies and resources (Pettersen, 2016).

In practice theory, the social practice is the unit of analysis and intervention (Pettersen, 2016) – rather than, for instance, sociodemographic customer segments as are used in consumer behaviour research. Shared social norms are reproduced by, changed through and also guide bodily routines, and 'value emerges in practice' (Pettersen, 2016). Changes within and between practices can occur in 'everyday crises of routines' (Reckwitz, 2002, p. 255) as links are broken and replaced, both by the transformation of artefacts and that of the cultural codes, meanings or skills of the people that interact with them (Pettersen et al., 2013). As was explored in chapter 2, practice-oriented design builds on social practice theory (e.g. Warde, 2005) in seeing consumption as socially constituted, a result of other social practices such as washing or eating rather than of the intentional choices of individuals per se or as an end in itself (Kuijer et al., 2013; Pettersen, 2015).

As a field of research it is still relatively new, and some argue that despite their philosophical and methodological differences, both behavioural and practice approaches are required in addressing issues of sustainable or circular consumption and design – for instance in the integration of individual values with social meanings and norms (Piscicelli et al., 2015; Piscicelli & Ludden, 2016). Both social practice theory and design are concerned with the role of objects and materials in the development, reinforcement or discontinuance of practices and patterns, and with relationality as well as materiality. The co-evolution of practices and products is intrinsically connected to, and indeed configures, cycles of production and consumption, with consumer goods playing an active role in 'the dynamics of doing, desire and demand' (Shove et al., 2007, p. 66). Social practice theory perspectives have thus been described as 'highly relevant' in understanding the role of design as it relates to sustainable lifestyles (de Jong & Mazé, 2017, p. 436) and allowing for the

integration of new material elements, social or technical skills or the replacement of current norms and meanings with alternative ones (Piscicelli & Ludden, 2016; Scott et al., 2011). By bringing together material resources, users and cultures and utilising a combination of social science and design methods, researchers may go beyond rational or linguistic responses, focus on doings, and not only explore but also influence perceptions, experiences and future practices (de Jong & Mazé, 2017).

A concern for meanings and the agency of objects links social practice theory to material culture theory: products are part of the active construction of meaning and identity, and cultural norms are reproduced through everyday routines (de Jong & Mazé, 2017, p. 436). Whilst cultural theories traditionally focus on the symbolic and semiotic role of things in the creation of identity, reproduction of culture and transfer of meaning however, design research highlights their practical, material role in the everyday shaping and 'scripting' of action (Shove et al., 2007). This also applies to physical environments such as the home, which configures and is configured by the performances of those who live there. As Latour stipulated, competences are brought to bear both by human and non-human actors and thus agency is 'hybrid' or distributed, a result of the interactions between humans and artefacts rather than a property of either (Pettersen et al., 2013). These human users and their things configure, domesticate or appropriate each other in a constantly emergent dynamic that re-orientates meaning as practices and products co-evolve. Moreover it is not just individual things but whole complexes of artefacts or technologies and competences that configure each other as part of this evolution – the reproduction and transformation of practice (Shove et al., 2007).

User value therefore can be seen as emerging in practice or in the localised interactions of users and objects, rather than in products or services themselves or even the meanings attached to them; in fact practice conventions can work to insulate their carriers from marketing or promotional influences (Boztepe, 2007; Shove & Pantzar, 2005; Warde, 2005). Designers may impact objects and practices and even act as facilitators bringing together actors from private, public and third sectors or supporting niche innovation and 'grassroots' movements (Pettersen, 2016), but since elements are integrated during use this impact is also limited by user perspectives and contexts. Likewise rather than design discovering and meeting pre-existing user needs, both users and artefacts can be seen in a more constructivist light as 'actively implicated in creating new practices and with them new patterns of demand' (Shove et al., 2007, p. 10). Since value emerges in practice, Pettersen suggests that

> the challenge is not to meet expectations in more efficient ways, but to support change in less impacting directions, by introducing and linking tools and procedures to meaning, to open up for new kinds of desirable but less resource-intensive service (Pettersen et al., 2013).

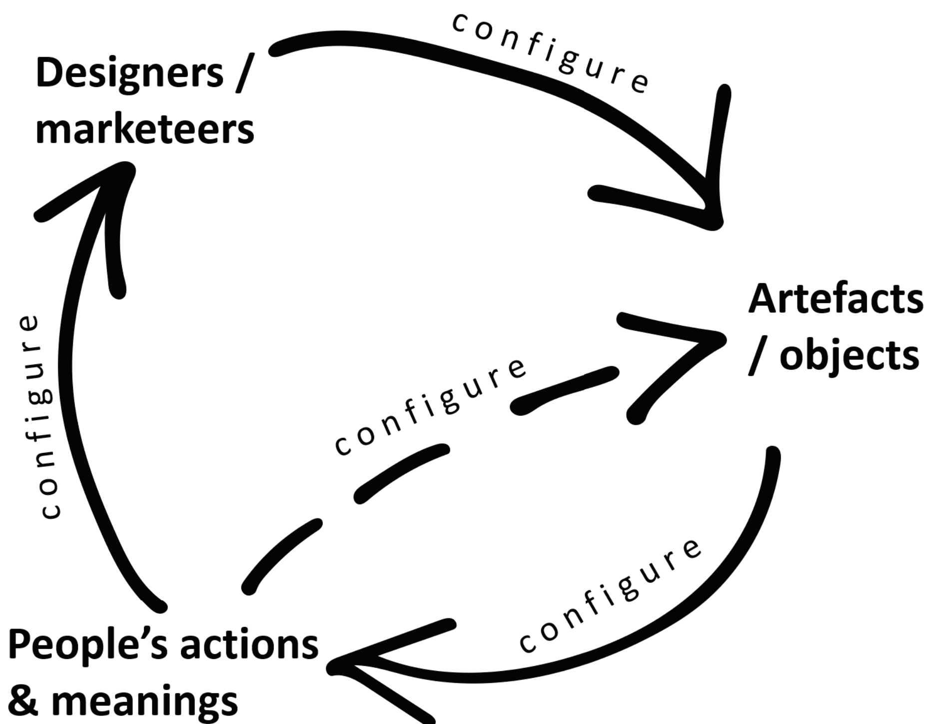


FIGURE 18: ACCORDING TO SHOVE AND OTHER PRACTICE THEORISTS, VALUE EMERGES FROM THE INTERACTIONS BETWEEN PEOPLE, DESIGNERS AND ARTEFACTS, ALL OF WHICH ARE INVOLVED IN CONFIGURING EACH OTHER. IN THIS PROCESS OF CO-EVOLUTION AND TRANSFORMATION, NEW MEANINGS CAN EMERGE (SHOVE ET AL., 2007)

As with Study 1 and DfSB, the issue of a reorientation of meaning is once again apparent as key to effecting transformation, in this instance connected with the use and integration of artefacts in practice. Until fairly recently, consumption research (particularly in the consumer behaviour and marketing fields) has tended to focus on acquisition rather than use or the relationships between objects and competencies or between different practices; by seeing consumption in terms of practice therefore it becomes more possible to explore the relations between spaces, objects and images, the formal or tacit rules and procedures of engagement (Julier, 2014) – and consumption as a succession of moments that encompass many occasions of use and disposal, rather than as a static instance of acquisition. Evans's definition of consumption as a series of six 'moments' is therefore useful for recognising this more expansive and practice-based notion of consumption (see Table 5) (Evans, 2018, pp. 8–9). As well as expanding the remit beyond shopping or 'acquisition', it seems to have particular relevance for research on the circular economy since it builds on the definitions by Warde (Warde, 2005, 2014) to also include the counterpart '3Ds' which highlight the ridding process and life of goods and services after use.

Acquisition refers to processes of exchange and the ways in which people access the goods, services and experiences that they consume. It invites questions about the political, economic and institutional arrangements that underpin the production and delivery, and the volume and distribution, of consumption.
Appropriation refers to what people do with goods, services and experiences after they have acquired them. It invites a focus on how objects of commercial exchange can be given meaning or incorporated into people's everyday lives. For example, when a commodity assumes particular significance to somebody – a garment that is cherished for flattering one's physique or serving as a reminder of an experience shared with a significant other – it is said to have been appropriated.
Appreciation refers to the ways in which people derive pleasure and satisfaction from consumption. It invites a focus on frameworks of moral, social and aesthetic judgement, and it recalls Bourdieusian notions of taste, distinction and stratification.
Devaluation is the counterpart to appreciation. Just as wants and needs are met, and pleasure and satisfaction derived, from consumption, so too can goods, services and experiences cease to operate effectively. Economic value might be lost over time or through wear and tear but so too can the loss of cultural meaning lead to symbolic failure. For example, the experience of frequenting a hard-to-reach travel destination may be devalued if it becomes more widely and easily accessible.
Divestment is the counterpart to appropriation. Just as goods, services and experiences can be personalised and domesticated, so too can these attachments be undone. Returning to the parable of the appropriated garment: if one's body changes or the relationship turns sour, investment in the garment might unravel leading to its divestment.
Disposal is the counterpart of acquisition. Just as goods, services and experiences are *acquired* through differing political, technological and economic arrangements, so too can they be *disposed* of in myriad ways that do not automatically necessitate their wastage. Things that have been devalued and divested can be routed through multiple conduits of disposal – for example gifting or re-selling – such that they might be reappropriated in second cycles of consumption.

Table 5: Evans's six 'moments' of consumption are used as a conceptual framework in Study 2 (Evans, 2018, pp. 8–9)

These moments acknowledge the life cycle of goods and services which are acquired and appropriated to fit the lifestyles and domestic environments of their users, but which are also – often less visibly – devalued and got rid of. In the context of design and social practice theory, value may emerge or meaning be reoriented at any of these stages, and the value of not using or owning an object at some point may also become greater than that of owning it. These flows of materials through the economic system and the domestic sphere, together with their volume and speed and the meanings, associations, norms and needs which influence them, are critical to the success or otherwise of a CE. As mentioned in Chapter 2.1, in recognising the problems of overconsumption it is important that CE also comes to terms with the need for sufficiency in these stages of consumption – a topic which I now address in more detail as a central principle of this study.

Sufficient consumption

As alluded to in Chapter 2.1, the concept of sufficiency has been implied in circular models for some time but is only recently being made explicit (N. Bocken & Short, 2020). Recent years have seen increased interest in topics of degrowth, post-growth, sufficiency and steady-state economics in both the policymaking and academic spheres

(Degrowth.org, 2017; The Guardian, 2018; Weiss & Cattaneo, 2017). According to Thomas Princen, sufficiency is an alternative logic that is contrary to efficiency but attuned to ecological rationality and the interactions between biological and human systems; it implies a sense of 'enoughness' rather than 'second best', of 'thriving' rather than 'surviving' and advocates the exercise of restraint in a way that is consistent with an unpredictable world of unknowable and uncontrollable systems and relationships (Princen, 2005, p.18). Sufficiency may be seen as a solution to the problem of rising affluence, since research has shown that higher disposable incomes at a household level are reflected in higher expenditure and product purchases (and thus a significant determinant of higher environmental impacts), and more than 60% of global greenhouse gas emissions and up to 80% of resource use are due to household consumption (Ivanova et al., 2015).

In spite of the imperatives however, sufficiency has until recently only been implicitly linked with CE. Although the concept is present in 54-55% of CE definitions, the term 'reduction' is often omitted from definitions that retain reuse and recycling, with the main focus still largely being on economic prosperity (Kirchherr et al., 2017). Nevertheless, various waste hierarchies or 'R' frameworks are seen as a core component of a circular economy, with the suggested hierarchy of action usually pointing to a version of 'reduce' (e.g. refuse, rethink) as the priority (Kirchherr et al., 2017). The Ellen MacArthur Foundation has previously spoken about the 'power of the inner circle' (the innermost loop of all would be non-production or non-consumption) (Ellen MacArthur Foundation, 2013) and a cornerstone of Walter Stahel's work in the Performance Economy is the Inertia Principle (Stahel, 2010), which also implies the elimination of a need for some material circulation through the prevention of production and consumption. Bocken et al.'s product design and business model strategies for a CE focus on 'slowing and closing' resource loops, implying a reduction of material usage at different stages during a product or material's lifetime (N. M. P. Bocken et al., 2016), with one of the six business model innovations involving the encouragement of sufficiency through the reduction of end-user consumption.

A recent chapter by Bocken and Short does acknowledge sufficiency as 'the next major paradigm in industrial sustainability' and critical for a CE (N. Bocken & Short, 2020, p. 14). In contrast with earlier paradigms of green or lean manufacturing and production, characterised by their focus on technology, efficiency and 'doing more with less', a sufficiency-based CE seeks to 'make do with less' through new business models as well as civil, market and policy interventions (see Framework for sufficiency governance and interventions, N. Bocken & Short, 2020, p. 11). In a sufficiency-based CE the focus shifts from growth-based production and consumption towards a society which prioritises health and wellbeing through the cooperation of private and public sectors together with citizens. The affluence of the so-called developed world is curbed and people look to have 'enough for a healthy, meaningful life, but without excess' (N. Bocken & Short, 2020, p. 2). Of course, as Bocken and Short acknowledge, sufficiency may be counterintuitive to business as it advocates selling less and may therefore need to be driven by civil, media and policy actors – and also by consumers. Although consumption is acknowledged as a major cause of waste and environmental impact, consumers themselves are also householders and citizens, and according to Princen

may find the notion of sufficiency in a CE easier to comprehend and engage with than profit-led economic actors traditionally reliant on growth (Princen, 2005).

Certain branches of sustainable consumption or consumer culture literature deal with topics associated with reduced consumption and may thus be seen as more in line with a sufficiency approach. Rather than shifting purchasing habits to buy a green instead of a conventional product, for instance, someone might opt out of purchasing anything at all. Terms defined in the literature which describe the motivations and practices of those involved include anti-consumption, reduced consumption, voluntary simplicity, asceticism, constrained consumption, downshifting, non-materialism and consumption rejection (I. Black & Cherrier, 2010; Bly et al., 2015; Cherrier, 2009). Voluntary simplicity and anti-consumption for example represent differing perspectives, with adherents of the former characterised by their pursuit of freedom, contentment and prosperity through a more simple, more examined and less stressful lifestyle (Alexander, 2011) and of the latter by their explicit avoidance or rejection of a brand or consumer practice for the sake of political or ethical arguments, or in the name of personal fulfilment, self-expression or social belonging (I. Black & Cherrier, 2010) (Chatzidakis & Lee, 2013).

With both of these and others, it is important to understand that very similar lifestyles or activities may be based on very different meanings or motivations (e.g. spiritual, personal, social, ecological or humanitarian), and that people may participate in practices of reuse or reduction for instance from contrasting ideologies or identities (Alexander, 2011; Håkansson & Sengers, 2013; McDonald et al., 2006). Some may not be intending to pursue this lifestyle at all, but rather find themselves engaging in it by accident, for instance due to straitened financial circumstances or a focus on health. Moreover the reasons for or against consumption can go beyond individual decision-making to include sense-making and post-behavioural rationalisations: ‘when accounting for their decisions, individuals choose from a repertoire of available social, public and cultural narratives or discourses that are ultimately limited’ (Chatzidakis & Lee, 2013, p.193), and instead are usually part of the dominant social paradigm (DSP) or countervailing logic. For instance, the notion that quality of life or wellbeing can be achieved through a consumerist lifestyle is predominant and supports the logic of market capitalism, whereas there is less discourse supporting the idea of reduced consumption or limits to growth. As already suggested in Chapter 2.2, green consumer identities (e.g. spending extra money for more sustainable items) may conflict with other core identities (e.g. as someone who saves or is careful with money), and in subjectively negotiating and constructing their own notions of sustainability to fit these different selves, people become ‘bricoleurs’ (I. Black & Cherrier, 2010), their activities both stemming from and enabling self-expression or personal need.

Although practice-oriented design has not focused so much on sufficiency until now, when it comes to absolute reductions in resource use it is also necessary to question consumption levels and standards and how these become normalised. According to Pettersen, both practice theory and design may be useful in understanding the development, standardisation and change of a practice as well as identifying where and how to intervene to achieve reductions (Pettersen, 2016). Citing Geels’s multi-level perspective (MLP), she distinguishes between interventions that are compliant

with the current regime, such as traditional resource efficiency or ecodesign approaches, and those that 'stretch' the regime for instance by moving beyond product-centric innovation towards service, systems and lifestyle innovation, infrastructure change or the reconfiguration of symbolic meanings (Pettersen, 2016). As has already been alluded to in this section, Pettersen also suggests that interventions should in any case target not only technology but also the routinisation and integration of symbolic meanings, practical skills and materials in order to bring about more systemic change and absolute resource reduction (Pettersen, 2016).

Of course, in bringing about a more sufficient circular economy and reducing resource consumption it is important that human wellbeing is not also reduced in the process, and indeed many researchers have called for a greater focus on wellbeing to replace that on GDP growth (The Guardian, 2018; Ward et al., 2016).

Wellbeing

Over the past twenty years there has been increased interest in topics related to positive psychology and human happiness, but research has shown that increased money or purchasing power does not lead to improved outcomes in terms of happiness or wellbeing (Inglehart, 2018; Middlemiss, 2018, p. 192) and 'too much' choice or autonomy, e.g. in a shopping context, can even be experienced as a kind of tyranny (Ehrenfeld, 2008, p. 39). Psychological investigations show that there is in fact a negative association between materialism (the desire for money, image and status) and well-being (Dittmar et al., 2014; Richins, 2013), and across different cultures studies suggest that materialistic values or high levels of concern for possessions and acquisition are associated with decreased levels of happiness (Dittmar et al., 2014; Jackson, 2005b). The anticipation of purchase or ownership can in fact be more rewarding than actually having a thing, with high-materialism consumers experiencing pleasure (rather than happiness) from merely imagining how acquisitions could change their lives (Richins, 2013). Some theories and clinical evidence even suggest that marketing-fuelled or compulsive consumption can be used as a self-medication to relieve negative states or to compensate for a kind of existential emptiness, risking a spiral into overconsumption and unhealthy coping strategies (Dittmar et al., 2014; Solér, 2018).

Although in a world of affluence people can search for answers to existential problems in the material sphere (Alvesson, 2013) it seems that non-material needs cannot be satisfied through material consumption. Certain advocates of sustainable consumption thus argue that consuming less can make people happier as well as benefitting the environment: this is the 'double dividend' argument that we can 'live better by consuming less' (Jackson, 2005a). However, such a concept has been largely debunked as over-simplistic: the idea that people will become happier merely by consuming less is misleading, as material goods can be important symbols or mediators in the communication of social, cultural and personal meaning, used to negotiate and reconstruct identity and value as well as fulfil vital physical requirements such as for shelter or clothing (Jackson, 2005a).

Kate Soper's alternative hedonism thesis similarly suggests that the 'good life' is not about buying and owning stuff but rather to be found in simpler lifestyles,

relationships, experiences and wellbeing – but rather than emphasising self-denial or the concept of ‘less’, alternative hedonism embraces happiness and self-interest and acknowledges that sustainable consumption cannot be achieved by appealing to altruism alone. Rather, people act according to pleasure and enjoyment and this must be taken into account when encouraging and designing new forms of consumption (Soper, 2008). Such approaches redress the balance away from Kjellberg’s ‘environmental moralist’ (see Marketing section in Study 1) and a politics of self-sacrifice, towards a more self-interested and pragmatic perspective that acknowledges the importance of personal wellbeing, emotion and enjoyment. Transforming the meaning of wellbeing and satisfaction from the ability to spend and consume way beyond basic need fulfilment and towards, for instance, autonomy, self-actualisation and relationship, may help to shift the environmental burden of consumption and encourage new explorations of the ‘good life’. In other words, pleasure or social acceptability do not have to necessitate increased ownership of stuff if the stories about what counts as a successful or enjoyable lifestyle can be changed.

In terms of long-term species survival, human wellbeing is of course inextricably intertwined with environmental sustainability, but the relationship is complex and somewhat underexplored. They are linked in the psychology literature by common values and intrinsic motivators (Pohlmeyer & Desmet, 2017), and in the field of design scholars like Santamaria have pointed to wellbeing as a potential intervention or entry point through which to introduce sustainable practices to mainstream consumption, suggesting that sustainable products and services could be more appealing or more widely adopted if framed around a discourse of happiness or wellbeing (Santamaria et al., 2016). Designers have a responsibility to consider both environmental contexts and personal expectations in their creations, say Santamaria et al., and sustainable design propositions should also feel culturally and contextually relevant and desirable to consumers and users (Santamaria et al., 2016). Designers should therefore move beyond concept and product development to understand their role as cultural mediators and familiarise themselves with the ‘tools and methods used in communication practices, as well as consumption practice theory and cultural analysis’ (Santamaria et al., 2016, p. 25).

Rather than perpetuating a consumerist ideal of wellbeing as implying personal choice and freedom through increased access to desirable products, or the minimisation of personal effort, some design researchers suggest that activities contribute more to wellbeing than objects and the challenge now is to involve users actively as co-producers rather than consumers, who can both create and become part of a sustainable solution (Manzini, 2006; Pohlmeyer & Desmet, 2017). Other researchers, such as those endorsing the Slow (Food, Cities) movements have also suggested that wellbeing can stem from the involvement and attention which people give to their possessions, to nature, to themselves and their community (Casais et al., 2016; Cooper, 2005; Sheth et al., 2011) and that spending more time on maintenance and care for current possessions rather than the purchase of new ones also chimes with an ethics of deep ecology and care for nature (Capra & Luisi, 2015b). The concept of consumers or users creating value and personal enjoyment through involvement echoes those from practice theory of user interaction and material configuration as sources of value and

the reorientation of meaning. These are now explored further with a discussion of material interaction or ritual, reflection and transformation.

Interaction, reflection and transformation

As has already been discussed, the 'turn to practice' has seen increased attention given to materiality, performance and 'inconspicuous' consumption (Shove et al., 2012; Shove & Warde, 2002; Warde, 2014), in which associated environmental impacts are contingent upon consumers' daily routines and activities (Evans, 2018) and consumption happens as a result of involvement in many different practices, often shaped by commercial interests such as design and marketing (Warde, 2005). Of course, as Evans and Welch point out, social practices are also cultural practices, consumption is not only about communicating with others based on sign values and identity, and neither is it all inconspicuous(Evans, 2018; Welch, 2017). Indeed, it often occurs in the course of fulfilling 'self-regarding purposive projects' (Warde, 2005, p. 147) such as those engaged in by craft consumers, or the heterogeneous assemblies and creative dialogues of *bricoleurs* (Campbell, 2005; Marion & Nairn, 2011; Shove et al., 2007).

The notion of the *bricoleur* (Bly et al., 2015; Marion & Nairn, 2011) or 'craft consumer' is characterised by elements of skill, creativity and self-expression, and in addition to those who physically redesign their products is used to describe consumers who create their own narratives or engage in the active re-contextualisation of objects through ensemble activities or collecting (including appropriation rituals and play), in order to reorientate their meaning and significance (Campbell, 2005). Watson and Shove expand on the relation between craft consumption and self expression, describing consumers as 'knowledgeable actors whose acquisitions are in some sense an expression of their capabilities and project-oriented ambitions' (Watson & Shove, 2008, p. 71). Products and skills configure practices and consumers integrate these into 'projects', such as DIY, in pursuit of a specific goal; projects may emerge in the course of everyday life or as 'grand plans', and these in turn generate new projects and possibilities and influence future consumption patterns, which in turn define future practices (Shove et al., 2007; Watson & Shove, 2008). Through reproduction and integration, links between practice elements can be changed and those with other projects and practices also transformed. These links have been identified as possible critical intervention points in influencing sustainable consumption (Pettersen, 2015).

According to sociological fields concerned with influencing or changing consumer activity through the material world (e.g. cultural theories or design), the creation and transformation of practices as well as user value or meaning can happen as a result of material action and interaction, bodily performances or rituals and crises of routine. Users act on objects (as in concepts of appropriation, domestication, repair, craft consumption or appreciation), objects act on users (through affordances, scripting, material structures and contexts) and cultural intermediaries such as marketers and designers act on both products and users, influencing consumption moments and shaping behaviours (Evans, 2018; Julier, 2014) (see Figure 16). Rituals such as possession, grooming, appropriation or divestment for instance are thus a method of meaning transfer or manipulation, ostensibly allowing consumers to draw the stories spun by advertisers into their own lives (McCracken, 1986). Activities such as mending

or making allow for embodied knowledge or learning by doing, affirm people's ability to shape the material world - and often prove emancipatory for participants as well as resulting in greater attachment to and care being taken of the items involved (Collins, 2018).

A significant and growing body of literature in the sustainable design field highlights the emotionally meaningful relationships that can result in people keeping their products for longer, or the product interactions that can be designed to prompt more sustainable reactions. For example, the theory of emotionally durable design first devised by Jonathan Chapman (Chapman, 2015, 2017) has now become a widely-cited concept that connotes the reduction of waste and resource use through design strategies that address the behavioural and meaningful relationships between people and their material worlds. Design, argues Chapman, has the potential to create products that will endure, not just through their physical durability but through the lasting emotional connections that people develop with them – for instance as is often the case with customised, tailor-made or crafted items.

Several of these sub-fields of sustainable design also consider forms of reflection or mindfulness to be critical in reorienting consumers towards social and environmental sustainability, for instance the subfield of Positive Design which suggests designing for more mindful and meaningful living as a means of increasing peoples' wellbeing and happiness (Casais et al., 2016; Pohlmeyer & Desmet, 2017). The concept of the 'performative object' modifies an object's function to direct the user's attention towards the social consequences of interaction and thus recreates the consumer as participant (Niedderer, 2007), whilst the concept of 'presencing' can inscribe subtle messages in artefacts in order to induce reflective breaks that cause users to reassess norms and assumptions relating to sustainability, self and concern for the world (Ehrenfeld, 2008). Strauss and Fuad-Luke's Slow Design Principle of 'reflect' suggests that artifacts and experiences should induce 'contemplation' and 'reflective consumption' by being infused with stories or meanings that evolve over time and lead to growing attachment (Strauss & Fuad-Luke, 2008), and these principles are developed by Grosse-Hering et al. who demonstrate how mindful and meaningful product interactions can support greater product attachment by encouraging people to physically take time to focus on and consider their actions (Grosse-Hering et al., 2013). They also add a seventh principle of 'ritual', recognising that rituals serve to slow people down, provide an anchor for hectic lives and induce reflection. Bohlin has further shown how emotions and imagination are central elements when second-hand and flea market consumers engage with reused items in ways that create affectionate bonds, and, further, how a sense of care is present when they choose to circulate used items and pass them on to others (i.e. divest) (Bohlin, 2019). For Gregson et al. there can be a relationship between practices of divestment and other consumption practices, with ridding for example representing a way to become a more 'competent' consumer: 'to be a competent practitioner involves a thoroughly reflexive engagement with the ways in which objects are used, even not used...', they argue, as divestment is not just about getting rid of stored goods but also divesting from the very practice of accumulation (Gregson et al., 2007, p. 197).

The value of reflection, and by extension reflexivity, is highlighted by sociologist Margaret Archer who refers to the 'internal conversation' and deliberations that people conduct in their heads as the very thing that allows them to make their way through the world (M. S. Archer, 2009, p. 5). She suggests that reflexivity allows people to consider themselves relative to their social contexts, mediating the power of outside cultures or structures and playing a part not only in people's imagination and anticipation of the future but also in their justification of past activities and occurrences. Nevertheless, Archer is very clear that the deliberative process of reflexivity is not a rational 'cost-benefit' analysis but is 'emotionally charged', as it is emotions and concerns which provide the impetus for action or inaction. She argues that:

> our personal powers are exercised through reflexive inner dialogue and that internal conversation is responsible for the delineation of our concerns, the definition of our projects and, ultimately, the determination of our practices in society (M. S. Archer, 2009, p. 16).

It seems that slow-paced, deliberative material interaction and reflexivity can prompt more enduring alternative forms of thought, perception and contemplation, and Cupchik for one distinguishes between these and between fast-paced social change or surface-level feelings of anticipated pleasure fuelled by social hype and external opinion-makers, which can lead to more transient product relationships and a dissociation of emotion and intellect (Cupchik, 2017). These concepts also recall the third, reflective phase in Don Norman's model of user experience, which goes beyond the visceral or behavioural and in which emotions, associations and cognition are all engaged (Cupchik, 2017; Lupton, 2017).

Once again, these concepts are made more explicit in the paper, which explores sufficient consumption, wellbeing and material interaction in the context of the KonMari decluttering method. Socio-cultural and design-based approaches concern the integration of material objects and environments in the construction and transformation of meaning, with users seen as participants and even designers who configure and reintegrate cultural norms, associations and meanings through their actions. Ritualised and reflexive material interaction and the experience of emotion, such as takes place when participants ask themselves if something 'sparks joy', may give rise to a reorientation of meaning, and wellbeing for instance may be newly associated with more sufficient forms of consumption by consumers who are not primarily motivated by sustainability concerns. As has been alluded to before, artefacts and materials can play important roles in sensemaking and in the transformation of conventions related to sustainability, to the extent that owning fewer material objects may become more meaningful or valuable than being surrounded by many things. Of course these relationships are not straightforward and contexts are always variable, but there are many instances from design literature, including the emergent design for social practice literature, in which the reflexive and emotionally charged configuration of artefacts and physical environments is a dynamic process that can lead to the reorientation of meaning as practices evolve. The pursuit of more enjoyable lifestyles

through KonMari decluttering is one context in which sustainable or sufficient consumption could be an ‘accidental’ and secondary, but very significant outcome.

Study 3

'We are living in the ruins of other people's visions: and our children will live in the ruins of ours' (Lockton & Ranner, 2017, p. 489)

This final study represents a normative and practice-based investigation of future consumption in a CE through the theoretical approaches of design activism and speculative design and a focus on imagination and performance. Incorporating some of the findings from studies 1 and 2, including an emphasis on emotion, storytelling, sensemaking, material interaction and reflection as means of transformation, it comprises the design of a physical exhibition to present and deepen the exploration into circular consumption. Using the scenario of the fashion industry within a localised Norwegian culture, it suggests the 'look and feel' of a CE to a 'real life' audience to help them to imagine and ultimately to act.

RQ: ***What is the potential for design futures and performance to engage people with future circular consumption, and what could circular consumption look like in practice?***

Imagination, futures and performance

'The exercise of imagination is dangerous to those who profit from the way things are because it has the power to show that the way things are is not permanent, not universal, not necessary.' (Le Guin, 2004, p. 219)

The science fiction and fantasy author Ursula Le Guin asserts that both science and fantasy are based on the admission of uncertainty: both ask questions about why things are as they are, whether they must be that way and what it could be like if things were otherwise (Le Guin, 2004). Imaginative literature, like fantasy, is subversive, an instrument of resistance to oppression which opens doors heretofore closed and admits that current realities, or perceptions, may be incomplete and even mistaken. Through offering alternative realities in her writing, Le Guin shows the reader that things don't have to be the way they are and attempts to dislodge them from 'the lazy, timorous habit of thinking that the way we live now is the only way people can live' (Le Guin, 2004, p. 218). However, people's imagination of the future (as well as engagement in the present) is usually limited by their experiences, their understanding of how the world works and what is possible, and by implicit logics or orders of worth (Rowson, 2017; Welch et al., 2017); this is what makes imagining truly sustainable futures so challenging. Nevertheless environmental scientist, systems thinker and author Donella Meadows also emphasises the power and necessity of imagination, arguing that a sustainable world must be preceded by a widely held, common vision of a sustainable world (Donella Meadows et al., 2008). In sustainability transitions, visions have a role in mapping possibilities, defining problems and setting targets, building networks or communities of practice and focusing resources to perform desirable futures and coordinate action (Hajer & Pelzer, 2018). Founder of the Transition Towns movement in the UK Rob Hopkins claims that imagination is critical in creating a future sustainable economy: 'if we can imagine it, desire it, dream about it, it is so much more likely that we will put our energy and determination into making it reality' (Hopkins, 2019, p. 8). He gives many examples of citizen-led or practical projects from all over the world in which positive cultural

visions have provided radical responses to interconnected global climate crises; for example, how providing images, visualisations, stories and narratives that incorporate familiar elements whilst showing how things *could* be can galvanise people to reimagine current scenarios and to act (Hopkins, 2019). Asking 'what if' questions, according to Hopkins's investigations, can similarly seed ideas in people's minds and dare them to think of the imagined as the possible, and he cites research which suggests that providing tangible, visceral, immersive and especially multisensory tastes of the future can influence people's decisions and increase their self-efficacy in the present (Hopkins, 2019, pp. 177–178). Of course it is extremely difficult to measure the direct impacts of imagination, but this perspective has been developed to some extent by the academic field of Future Design particularly in Japan, which has shown that including figures from future generations in community and local government decision-making has meant that more altruistic and sustainable options are chosen as a result (Saijo, 2020).

Design has the capacity to use imagination to shape not just products but the human mind, to structure the way that we live and to create futures that incorporate people, perception and meaning as well as materials and technology (Chapman, 2017; Fry, 2009; Hebrok, 2020). There are many different concepts of design as a means for creating future visions, many of which challenge norms or explore possible scenarios or broaden everyday perspectives and often use research through design to provide a critical or co-creative process or use a material prompt to stimulate reflection and questioning (Hebrok, 2020). Techniques of Futuring for example are 'practices bringing together actors around one or more imagined futures ..through which actors come to share particular orientations for action' (Hajer & Pelzer, 2018, p. 225). This is a kind of active engagement with the future in which people make futures conceivable (or not) through talking, acting or 'performing'; stories, metaphors, concepts or discourses have the potential not just to communicate about physical and social realities but to shape them as well (Hajer & Pelzer, 2018, p. 224), and thus the combination of visuals, text, numbers and performance in an installation or the active readjustments by the designer are key. Using the 'Odyssey' energy project as a focus for their empirical research, Hajer and Pelzer argue that bringing people together in new, unfamiliar settings, staging several different types of intervention, making use of material or boundary objects and creating immersive, almost theatrical experiences were most effective in stimulating people to imagine possible new futures and engaging them with imaginaries (Hajer & Pelzer, 2018, pp. 228–229). The critical point here is that futuring 'has to be enacted or performed in order to have an effect', for instance in shifting expectations (Hajer & Pelzer, 2018, p. 229).

The issue of performance has a long history in sociology, with key figures such as Goffman emphasising the presentation of the self through different roles or Wittgenstein and Austin (1962, in How to Do Things with Words) demonstrating the active or performative powers of language. Theories of performativity have since been expanded to suggest and analyse how reality is not just reflected or defined, for example in design, communication, social performance or socio-technical networks, but also constructed and changed by it (Licoppe, 2010). Ideas or concepts are thus not merely descriptive but also active in shaping outcomes - for instance representational, normalising and exchange practices in marketing theory are also involved in the

shaping of markets (Kjellberg & Helgesson, 2007). According to Kjellberg, 'the devices at work in performing consumer society operate at multiple levels and with considerable cunning; they need to be appropriated in the construction of alternative compelling narratives' (Kjellberg, 2008, p. 163). These devices may include issues of power, materiality, gender and culture which can play important roles in performing and transforming meaning and practice (de Jong & Mazé, 2017) and producing and reproducing norms. Revealing such power structures and hegemony through design can be very powerful, but to date there has been little exploration of the political role of designers in creating future visions and scenarios for behaviour (Lockton & Ranner, 2017; Mazé, 2019).

As cultural intermediaries, designers and their designs play an important role in this work of performance, reproduction and transformation and have the potential to disrupt existing lifestyle patterns or systems and suggest new ones. They influence, and are influenced by, socio-cultural contexts, and the models or narratives they create can shape and determine assumptions, behaviours and infrastructures in turn (Lockton & Ranner, 2017). For example processes of participation, experimentation and visioning are ways for design practice to catalyse change in complex systems across time and place. Concepts such as *provoking* and *affirming* are familiar in transition design, with trigger materials used to defamiliarize or even destabilise taken-for-granted scenarios and then to support the exploration of current practices or ideas by the user (Hesselgren et al., 2018). Participatory, speculative and performative methods are useful ways to help people imagine the radical changes necessary for sustainable lifestyles, and to combine social science and design methods by documenting and performing alternative sayings and doings (de Jong & Mazé, 2017). Such processes and props can be most effective when they maintain links with current lives and experiences whilst also promoting discussion and reflection of possible futures (Hesselgren et al., 2018).

Future design, transition design, the two genres I explore below (speculative and activist design) and many others may be seen as part of a critical design tradition which directs its focus away from the creation of products and reinforcement of capitalist cultures. Critical theories in general tend to identify power structures, to ask questions about who exactly is setting agendas and profiting from these or providing the meanings and interpretations to justify action; likewise, in these less commercial fields design aims to ask 'what if?', to reimagine everyday life and to critique people's assumptions about various aspects of society, economy, politics, culture or environment (Julier, 2014, p. 102).

Speculative Design

'Whereas it is accepted that the present is caused by the past it is also possible to think of it being shaped by the future, by our hopes and dreams for tomorrow' (Dunne & Raby, 2013, p. 160)

Critical design inquires into what good design is, challenging assumptions about the role of design in everyday life (including its product-centricity) and using design methods and research to provoke debate around social and cultural issues. According to Mazé and Redström it is an approach rather than a method, operating both 'outside-

in', for example in borrowing techniques from the arts and crafts to critique design norms of taste, aesthetics or functionality, and 'inside-out', utilising design tools and techniques and materials to critique capitals, cultures and social systems outside the discipline (Mazé & Redström, 2009). Critical design has only really emerged in the last 20 years as a way to think critically about different futures and a stage to provide feedback or enable dialogue between specialists and the public. With roots in critical architecture, anti-design and conceptual art, it critiques or subverts design norms and encourages debate by, for instance, playing with ideas, reframing the role of design and using objects to serve symbolic or culturally provocative rather than utilitarian functions (Malpass, 2013; Mazé & Redström, 2009; Pierce et al., 2015).

Critical design is widely acknowledged to have originated with the work of Dunne and Raby at the Royal College of Art which focused on technical and dystopian futures, a polished aesthetic and somewhat programmatic philosophy (Malpass, 2013; Mazé & Redström, 2009; Pierce et al., 2015), but has also since been critiqued – for instance by researchers in the field of HCI (human-computer interaction) – for its incoherence or deficient methodological development, confusion of ideas and lack of reference to critical theory (Pierce et al., 2015). Mazé and Redström also warn against a tendency towards an 'overly self-reflexive' orientation (33) by academics in the field, and suggest that use scenarios can also be seen as inherently critical in the way they imperfectly translate design ideas into different contexts (Mazé & Redström, 2009).

The ontology of critical design thus remains contested, and some researchers distinguish between, for example, associative, speculative and critical design as different types of critical practice, all using concepts of narrative, satire and rationality to provoke and engage audiences and subvert expectations or disrupt conventional associations (Malpass, 2013). Critical design practice tells stories, provokes discussion and requires engagement, reflection and exploration on the part of the user; using performances, installations or objects as props to suggest alternative narratives of use and to bridge multiple perspectives, it constructs 'publics' that open up spaces for social awareness, debate and the challenging of the status quo (Malpass, 2017).

Whether as a mode of critical design or a fundamentally different perspective, speculative design can also be seen as more of an approach than a methodology (Hanna, 2019). Speculative design is concerned with how the present is configuring the future, the domestication, role and ethical implications of science or technology in our lives, and the emergence of new ideas, discourses and meanings. It addresses socio-technical trends, scenarios of use and material cultures, often using form and interaction and counterfactual narratives to present knowledge, prompt reflections or question values and assumptions – for instance through public engagement forums or tangible exhibitions that represent everyday domestic contexts (Dunne & Raby, 2013; Hanna, 2019; Malpass, 2013). It thereby takes on a social purpose, democratises change and widens participation with people as citizens and consumers by engaging them critically with fictional products, services and systems from alternative futures which are nevertheless couched within the contexts of the everyday (Dunne & Raby, 2013).

Speculative design encourages people to make ethical evaluations and think critically about what may or may not be desirable in the present, and often uses storytelling, science fiction, counter-factuals and material props to speculate on or prototype ideas and imagine alternative worlds without the restraints of a commercial design brief (Hanna, 2019; Hebrok, 2020; Malpass, 2017). As well as addressing contexts, products and human experiences, speculative design may involve active collaboration with scientists or provide immersive experiences mediated through interaction that question the role and intrusion of technology into everyday life by making clear the relations between society, culture and technical innovation, the alternative paths of scientific progress and the choice between them as a political decision rather than an inevitable advance (Hanna, 2019; Malpass, 2017). By affecting people's beliefs of what is viable or achievable in the future and giving space for critical reflection, speculative design thus aims to spark new emotions or contradictory responses or to reveal novel perspectives to its audiences in order to provide them with inspiration for present change.

Design for Behaviour Change and speculative design both treat object-oriented human behaviour, but according to Lockton and Ranner the former attempts to influence in a certain direction whereas the latter gives the opportunity for more open exploration. Whereas Design for Behaviour Change can conceal the intent behind a design process or system and has even been accused of social engineering, speculative design they say attempts to open scenarios up for reflection, asking questions about ethics, sustainability, complexity or power, exploring pluralistic futures and speculating about multiple possibilities (Lockton & Ranner, 2017). By creating certain contexts, objects or conditions, it is nevertheless a design approach which both predicts and creates the future (Lockton & Ranner, 2017). In their book *Speculative Everything,* Dunne and Raby assert,

> Speculative design contributes to the reimagining not only of reality itself but also our relationship to reality... the way the world is follows on from how we think; the ideas inside our heads shape the world out there. If our values, mental models, and ethics change, then the world that flows from that worldview will be different, and we hope better (Dunne & Raby, 2013, p. 161).

Pioneers of speculative design wanted to move away from design for purely commercial purposes, but whereas the first impetus was largely about debate, persuasion and change, later iterations have come to include more active approaches that actually propose solutions for, say, more desirable or ecological futures. One criticism levelled at speculative design is that it often remains hidden in elitist gallery settings and talks only to 'converted' audiences, but recent waves have prioritised experimental approaches, action over discussion, and more pluralist, decentralised and socially proactive perspectives (Hanna, 2019). Its increasing use in other contexts – such as business or municipal planning – as a tool to help ideate and innovate has taken it outside the ivory tower but also caused consternation about the ability of such projects to retain their ethical stance and integrity in confronting cognitive dissonance or social discomfort (Hanna, 2019). A complementary and arguably more normative or practical approach is provided by design activism, another influence for Study 3.

Design Activism

'Once people have lived in it, experienced it, drunk coffee in it, met new people in it, they are forever changed, their expectations of that place are forever changed, their sense of what the future could be is forever changed' (Hopkins, 2019, p. 169)

Design activism shares many of the critical, exploratory and performative elements of speculative design. According to Fuad-Luke it comprises 'design thinking, imagination and practice applied knowingly or unknowingly to create a counter-narrative aimed at generating and balancing positive social, institutional, environmental and/or economic change' (Fuad-Luke, 2009, p. 27). Rather than coming up with grand schemes it builds on what exists and is concerned with acting intentionally to instigate change; most current instances of design activism are concerned with either demonstrating positive alternatives or making information visual and tactile. Imaginative forms of visual communication through data, artefacts, stories or scenarios can prove powerful, emotive methods of engaging people and eliciting a response, whilst artefacts may be used in activism to explore theoretical ideas, suggest visions for sustainable change, demonstrate alternative scenarios or confront people and force them to reflect on the morality of a situation (Fuad-Luke, 2009).

As with speculative design, its explorations may take the form of subversive or alternative scenarios or imagined futures, representing the 'social learning journey' required in moving to more sustainable lifestyles (Fuad-Luke, 2009, p. 84). As such it also represents a framework that prioritises social, political and environmental values over commercial ones, but rather than striking or resisting it represents a 'designerly way' of challenging the status quo (Julier, 2014; Markussen, 2013). Designers can act as determiners and facilitators as well as creators, may encourage citizen participation, interaction or adaptation and thus become activists which host places and create spaces for indeterminate outcomes (Williams, 2018). The emphasis is on design as a transformative process and a means of reshaping perspectives and routines, and participatory projects have also demonstrated the importance of engagement and the limitations of relying on products and services alone in making behavioural changes (Julier, 2014).

Design activism may be the outcome of explorations in academia or real life, the purpose of a 'practice' context being that the outcome creates positive change in culture or society (Fuad-Luke, 2009). In transforming the lives of citizens and communities the designer may facilitate end-user participation, open up possibilities, challenge imaginations, build on desires and connect people, practices and place (Julier, 2014). Although situated within the everyday social and economic contexts of life, design activism can nevertheless be disruptive and destabilising, changing perspectives through reconstituting physical engagement and relationship as well as assemblages of material things, technologies or trends and representation (Julier, 2014). Markussen points to two important aspects of disruption: the potential for subverting power structures and critiquing consumption or work (for example), and for using art to 'open up the relation between people's behaviour and emotions – between what they do and what they feel about this doing.' It is by creating such an opening, he says, that 'design activism makes the relationship between people's doing and feelings malleable for renegotiation' (Markussen, 2013, p. 39).

Study 3 used these approaches of speculative design and design activism to challenge the status quo, suggest alternative scenarios, explore the space between feeling and doing and use familiar cultural scenarios to invite reflection and action with the aim of transformation. In order to achieve this, an interactive exhibition was curated around the contexts of future fashion in the Norwegian city of Trondheim.

Interactive exhibitions and fashion

'If the story is told in flatness, the "solutions" will be flat. If the work is done in sterile rooms with sterile power-points, the findings will not be imbued with the new frequencies necessary' (Bateson, 2019)

According to Dunne and Raby, exhibitions can be places to display existing products as well as serving as spaces for critical reflection and for people to explore their understanding of themselves. Design exhibitions in particular have started to move beyond the level of the product to address complex issues that represent challenges for society, in so doing providing laboratories 'for rethinking society, places for showing not what already exists, but more important, what is yet to exist' (Dunne & Raby, 2013, p. 154). In recent decades museums have started to see visitors as active participants or interpreters rather than a passive public, and it has been found that displays which encourage physical interaction, hands-on creativity and communication are most engaging for visitors of all ages, with people paying more attention to objects than text and spending more time with hands-on displays; facilitating group activities can be key, and of course design is central to the experience (Hornecker & Stifter, 2006; Macdonald, 2007). For example, The Happy Show by Stefan Sagmeister used colourful communications and simple interaction to take visitors on a journey of how he was trying to increase his own happiness, in so doing also encouraging them to reflect on their own happiness (Kim, 2013). In the Process Lab: Citizen Design, visitors were also asked to explore and record their thoughts and feelings as a precursor to engaging with and contributing solutions to community issues (Pollastri, 2017).

In order for cross-cultural, political or economic change to occur, Williams argues that people must participate in creating a sense of themselves as being part of their local cultures, communities and cities. Fashion has formerly been used in city-based participatory, co-creative projects as a facilitator that invites individual and social expression, creates 'spectacle', shows the possibilities of design, demonstrates and informs local culture and opens opportunities to 'activate performance to create disruptive participation' (Williams, 2018, p. 290). As has been established, sustainability and the challenges in shifting to a circular economy are cultural as well as social and environmental issues, and fashion is something that represents both ecological impacts and cultural expression (Ditty, 2020; Fletcher, 2012). Clothes are not just materials and stiches, they are a manifestation of what people are thinking and how they are feeling, their values and identities, how they see the world. They communicate without language, provide meaning, represent identity and social relationships and tell stories of time and place – and also of course are intimately bound up with humanity's use of natural resources (Fletcher, 2012; Williams, 2018). It has been suggested that overconsumption is fuelled by people feeling detached from the things they buy, being seduced by empty promises to buy things just because they are new, and constantly consuming to fill an empty self that is never satisfied

(Alvesson, 2013); moreover ownership of the object or fashion item itself can be less meaningful or pleasurable than the point of purchase in the 'theatre of retail' (see Study 2, Wellbeing), so garments are easily thrown away (Richins, 2013; Williams, 2018).

Furthermore the disconnect between production and consumption and global supply chains masks the reality of exploitation and ecological demise, whilst (in a type of rebound effect) higher levels of consumption have also overshadowed the reduced environmental impact of individual garments (Williams, 2018). The global clothing industry is now one of the most socially and environmentally damaging in the world, responsible for pollution, habitat destruction and waste on a colossal scale (Ditty, 2020). Klepp and Laitala's 2016 study on clothing practices in Norway suggested that the amount of clothes bought and used (and the associated environmental impacts) has increased dramatically in recent years, facilitated by cheap fast fashion and an emphasis on newness; textile waste itself increased by around 80% between 1995 and 2010 (Laitala & Klepp, 2016). The purchase of second hand, reused garments can go some way to tackling these trends, but they suggest that a reduction in the purchase of new clothes, the replacement of fast fashion with long-lasting quality garments and more investigation into options for sharing or renting must also form part of the solutions (Laitala & Klepp, 2016). As Williams says, both the fashion and design industries play a key role in 'taste making' and have the potential to move away from cultures of consumption and towards cultures of care:

> Fashion alone cannot address the existential crisis that many societies currently face, but as it is a vital part of how we explore our sense of selves, it can facilitate reflection and experimentation to re-imagine its practices, industrial and personal, in relation to environmental and social degradation. (Williams, 2018, p. 291)

By using the familiar concept of clothing or fashion to design an interactive exhibition that also referenced local contexts, issues of sustainability or circular consumption can thus be linked with culture and meaning in a way that is relevant for many people.

As mentioned, the final exhibition created for Study 3 draws together some themes and concepts from the previous studies such as material interaction, storytelling, emotion, reflection and fashion – which was also the industry of the four companies analysed in the first paper of Study 1a. It takes an exploratory approach using the critical, futures-focused design frameworks of speculative design and design activism to conceptualise, develop and create a physical exhibition (with a nod to the KonMari research in Study 2) that can be used to challenge assumptions, ask 'what if?', suggest alternative consumption models and invite participants to reflect on the connections between their own feelings and doings. Concepts of imagination and performance are important here, and to some extent echo the correlation between meaning and action introduced earlier on. The following chapters and the paper itself provide more detail of the methodology and results, and it is hoped that this background research will be extended in the future and that the conference paper will be expanded for submission to a relevant journal.

Chapter 5: Research strategies, methods, results and contributions by study

Having explored the background theory, this chapter now describes the research methods, data collection, analysis and interpretation of each of the studies in turn, together with their results and contributions to research. Chapter 6 then draws them together and contextualises them in a wider discussion before drawing conclusions and pointing out limitations and opportunities for further research.

Study 1: research strategies and methods

Study 1a (papers 1 and 2) aims to discover to what extent design frameworks such as the Dimensions of Behaviour Change and Design with Intent can be used to analyse companies' marketing and communications of 'circular' products or services, and to what extent the design strategies implied were already being used. In both papers 'real life' companies are identified through their circular strategies (longevity, leasing, reuse and recycling for 1 and maintenance, reuse, refurbishment and recycling for 2) using purposeful sampling, and paper 1 also identifies ten 'consumer factors' for a circular economy from a review of literature (using a 'snowball' approach) which represents motivating or barrier factors. The frameworks and factors are used as enabling constructs (Belk et al., 2013a; Figueiredo et al., 2017) in a paper which is nevertheless exploratory, interpretive and within the qualitative and socially constructive tradition. Data collection involved gathering field notes and conducting within-case qualitative content analysis about the companies' communications; rhetorical analysis is specifically used in paper 1 to subjectively evaluate the different communication approaches and select examples from the four companies that accorded with the 10 consumer factors. Qualitative content analysis is used in the analysis of text data and goes beyond counting words to subjectively interpret meanings through the classification of text into categories, and may use inductive (conventional), deductive (directed) or other (e.g. summative) approaches (Hsieh & Shannon, 2005); in this case the factors and frameworks provide a directed approach. The rhetorical style of analysis provides a critical, interpretive reading, takes into account pictures and other media and examines style, arrangement and delivery to understand how a message is crafted in order to gain a particular response. Data analysis in these as with the following empirical studies (especially 3) involved identifying patterns and then finding meaning in the data, looking for variation, relationships and drawing on prior literature or theoretical perspectives to make sense of it (Belk et al., 2013a). In Paper 2 a grid format presents how the Design for Sustainable Behaviour dimensions were used to communicate or address each of the four circular strategies of the companies. A table was also created to compare the presence of the dimensions of behaviour change in the design and communication of the products and services offered by the firms. A qualitative assessment was made as to where on each dimension's gliding scale the case company could be placed, but this was an indicative visualisation rather than an exact measurement.

Developing the theme of communication, Study 1b (paper 3) also takes an exploratory, conceptual approach to review and contextualise literature from the marketing, design for sustainability, visual communication and service design fields. It asks how the

design of visual communications at service touchpoints can engage customers with the new behaviours required in a circular economy. The aim was to perform a desk-based, transdisciplinary study in order to transpose and cross-reference concepts that may be valuable for the purpose of engaging consumers. In order to conceptualise customer participation in a circular economy a table of 're' activities was suggested, in the tradition of other waste hierarchies and 'R' models, with these activities being extrapolated from literature to represent a sample of required behaviours: return, repair, resell, rent, re-buy, retain, remunerate. The concepts of a 'customer journey' and 'touchpoints' were also borrowed from service design literature to illustrate the information flows and extended consumer relationships required in a circular economy. A collection of articles on information design was particularly useful in uncovering the impact of visual presentation on interpretation, and a snowballing method enabled the sourcing of further relevant texts. Literature focusing on information design and narratives in the context of healthcare and new product marketing was found to be particularly interesting, as it addressed behaviour change and persuasion outside of the traditional world of advertising and brand allegiance. In other words, the focus was on introducing people to entirely new behaviours or products rather than getting them to switch brands. The paper is a working study which was presented in a conference context but is not yet submitted to a journal, and it is intended that the concepts here are developed further, possibly into empirical studies.

Study 1: results and contribution

Papers 1 and 2 deal with companies' marketing communications from the perspective of Design for Sustainable Behaviour (DfSB), and how these can be analysed to engage consumers with circular products and services.

Paper 1 uses four principles of a circular economy (longevity, leasing, reuse and recycling) to identify four sample 'circular' businesses and reviews PSS, reuse, remanufacturing and consumer behaviour literature to find motivation or barrier factors for consumer acceptance of products and services which can be approximated as customer concerns for a circular economy (see Table 6). It also reviews some perspectives on green marketing and social marketing as well as the Dimensions of Behaviour Change and Design with Intent patterns from DfSB literature to identify behavioural means of engagement from the design literature which might provide a more nuanced approach to analysing and designing online marketing communications or consumer engagement strategies for circular economy businesses.

Consumer Factor	Reference
Contamination/disgust/newness	(Abbey et al., 2015) (Bardhi and Eckhardt, 2012) (Boks et al., 2004) (van Weelden et al., 2016) (Holmström et al., 2017) (Mugge et al., 2017) (Catulli et al., 2013) (Baxter et al., 2017) (Camacho-Otero, 2017)
Convenience/availability	(Lindström et al., 2015) (Weelden, Mugge and Bakker, 2016) (Cox et al., 2013) (Bardhi and Eckhardt, 2012) (Boks et al., 2004) (Camacho-Otero, 2017)
Ownership	(Lindström et al., 2015) (Tukker, 2013) (Antikainen et al., 2015) (Moore and Folkerson, 2015) (Camach-Otero, 2017)
Cost/financial incentive/tangible value	(Lindström et al., 2015) (Weelden, Mugge and Bakker, 2016) (Antikainen et al., 2015) (Abbey et al., 2015) (Mugge, Jockin and Bocken, 2017) (Cox et al., 2013) (Holmström, Böhlin and Biedenbach, 2017) (Guiot and Roux, 2010) (Camacho-Otero, 2017)
Environmental impact	(Lindström et al., 2015) (Antikainen et al., 2015) (Mugge, Jockin and Bocken, 2017) (Holmström, Böhlin and Biedenbach, 2017) (Guiot and Roux, 2010)
Brand image/design/intangible value	(Tukker, 2004) (Tukker, 2013) (Weelden, Mugge and Bakker, 2016) (Mugge, Jockin and Bocken, 2017) (Cox et al., 2013) (Antikainen et al., 2015) (Guiot and Roux, 2010)
Quality/performance	(Lindström et al., 2015) (Weelden, Mugge and Bakker, 2016) (Abbey et al., 2015) (Antikainen et al., 2015) (Holmström, Böhlin and Biedenbach, 2017) (Moore and Folkerson, 2015) (Mugge, Jockin and Bocken, 2017) (Camacho-Otero, 2017)
Customer service/supportive relationships	(Lindström et al., 2015) (Tukker, 2013) (Weelden, Mugge and Bakker, 2016) (Bardhi and Eckhardt, 2012) (Antikainen et al., 2015)
Warranty	(Weelden, Mugge and Bakker, 2016) (Cox et al., 2013) (Holmström, Böhlin and Biedenbach, 2017)
Peer testimonials/reviews	(Weelden, Mugge and Bakker, 2016) (Antikainen et al., 2015) (Holmström, Böhlin and Biedenbach, 2017)

Table 6: A summary of consumer factors for a circular economy, taken from literature on product service systems (PSS), remanufacturing and reuse (see Table 3 in paper 1)

It finds that, in general, extrinsic customer concerns like costs and warranties are addressed in the digital communications by hedonic dimensions such as rewards, encouragement, assuaging guilt, obtrusiveness and importance, whereas more intangible, intrinsic factors like brand image, environmental impact, quality and contamination are presented through eudaimonic dimensions like meaning, empathy and emotional engagement (see Fig.17). The retailers studied all demonstrate a combination of these approaches. Table 7 suggests that many different communication design strategies have been, or can be, useful in addressing different consumer factors in a circular economy, and the results of the four companies show that both intrinsic and extrinsic levers are used to engage consumers. The use of meaning or storytelling is particularly striking, with three of the companies telling the story either of their materials and products (rescued fire hose, repurposed outdoor clothing) almost in

human terms, or using the novel story of the business itself (rockstar entrepreneur, purpose-driven social enterprise) to attract attention and draw people in. DfSB design tools such as the Dimensions of Behaviour Change or Design with Intent can be useful for analysing and guiding business communications in the context of a circular economy, by suggesting different strategies that appeal to varying aspects of people's motivations or behaviour, and these can be regarded as novel contributions to emerging research on how to design and communicate circular offers to users in an effective way. Designers and marketeers are hereby provided with greater insight and more nuanced behavioural strategies for engaging consumers with circular offerings than has heretofore been available through green or other marketing literature, and the insights into eudaimonic dimensions such as storytelling, emotional engagement and meaning in particular provide a basis for the research in future papers (e.g. the focus on storytelling in Paper 3). These are less tangible or straightforward than, for instance, costs, rewards and warranties which are more directly associated with the product, but perhaps represent greater scope for interpretation by design and interventions that act at a more impactful, emotional level.

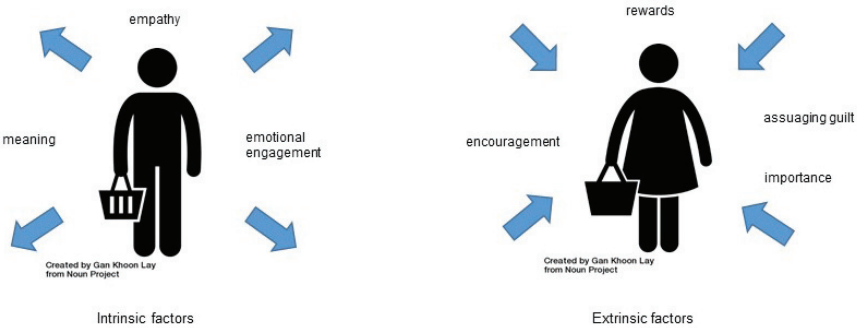


Figure 19: shows how intrinsic factors were addressed by eudaimonic dimensions, and extrinsic factors by hedonic dimensions (Figure 5 in Paper 1)

Consumer factor	Communication design strategies
Contamination /Disgust /Newness	Importance, playfulness, rephrasing and renaming, emotional engagement, empathy, personality, framing, choice editing
Convenience /availability	Encouragement, direction, simplicity, assuaging guilt, worry resolution
Ownership	Meaning, anchoring
Cost /financial incentive /tangible value	Encouragement, rewards, importance, first one free, scarcity, framing
Environmental impact	Transparency, simplicity, empathy, obtrusiveness, meaning, framing, emotional engagement, importance, assuaging guilt, direction
Brand image /design /intangible value	Meaning, storytelling, empathy, mood, colour associations, importance, emotional engagement, scarcity, prominence, obtrusiveness, expert choice, social proof.
Quality /performance	provoke empathy, meaning, storytelling, personality, importance, scarcity, expert choice, direction, emotional engagement, worry resolution
Customer service /supportive relationships	Encouragement, tailoring, transparency, emotional engagement, metaphors, provoke empathy, assuage guilt, reciprocation, importance.
Warranty	reciprocation, assuaging guilt, worry resolution, obtrusiveness, metaphor, importance
Peer testimonials /reviews	social proof, storytelling, provoke empathy, expert choice, importance, worry resolution

TABLE 7: SUGGESTS WHICH COMMUNICATION STRATEGIES CAN ADDRESS WHICH CONSUMER CONCERNS IN A CIRCULAR ECONOMY (REPRODUCTION OF TABLE 4 IN PAPER 1)

Paper 2 presents further examples of how companies use different DfSB strategies, or more specifically the Dimensions of Behaviour Change, to present their potentially circular concepts and products through web or offline communications. In this paper, the focus was also on how four companies used the Dimensions to communicate four circular strategies: reuse, recycling, longevity and refurbishment, and a grid was used to compare the presence of the dimensions in the design or communications of the products or services offered (see Figure 18). Similarly to Paper 1, companies were often found to use both sides of a scale (e.g. emotional *and* rational meaning), and to employ a number of the dimensions in their designs, showing that designers have many options to consider and combine when creating or promoting circular offerings. It is unclear without further user-focused investigations which, if any, of these options and dimensions could be more successful than others, nevertheless tools such as this from the DfSB literature provide useful insights and a more comprehensive, systematic way of designing and developing circular products or services and communicating with potential consumers – especially when the behaviours required are unfamiliar or take unusual effort. It is clear that engaging consumers with CE products and services through designing marketing communications can be done in multiple ways and is far from a straightforward process; as these two papers demonstrate, both words, images and other tactics can be used to tell stories, convey meaning and persuade consumers

to make a purchase, and some of these themes are explored further in Paper 3. This study therefore lays the groundwork for some very interesting future research.

Figure 20: A grid showed how DfSB strategies addressed CE behaviours (Figure 1 in Paper 2)

Study 1b (paper 3) built on the elements of storytelling and visual communication which were touched on in Study 1a in the context of marketing communications. When it comes to engaging consumers with the new behaviours and extended relationships necessary in a circular economy, it is clear that businesses may need to employ visual and narrative techniques throughout the customer service journey. Taking a conceptual approach, this paper extrapolated seven 're' activities from literature that customers might be newly involved in as part of a circular economy, and placed CE in the context of trends towards increased customer participation and supply chain influence, for example servitisation, product-service-systems and service design in the fields of business and marketing. The importance of maintaining customer relationships all along the service journey was highlighted, and the potential of these 'touchpoints' – whether physical or intangible – for interacting with, providing information to and ultimately influencing the customer. Customers moreover can be seen as participants rather than 'acceptors' in the consumption process, as they are also involved in the co-creation of value and meaning.

1. Return an item to the retailer, or to a third party
2. Repair an item themselves
3. Resell an item via an internet platform or offline
4. Rent or access a product/service as an alternative to ownership
5. Re-buy an item that has been previously used, repaired, remanufactured or recycled
6. Retain an item to prolong its life and postpone disposal
7. Remunerate, i.e. pay more for an item or service that has greater longevity

Table 8: 7 're' activities that exemplify the potential requirement for increased customer involvement in a CE (Table 1 in Paper 3)

This study explored the significance of visual rhetoric and narrative, and the potential of strategies such as these which convey information in more designed or creative ways for engaging consumers with circular activities. The power of visual communications can be seen as not only informative but performative, having the potential to structure people's environments, signify behaviours and influence understanding or experience; although people ascribe their own meanings and can 'act back', good information design has great potential for impact. Visual rhetoric uses graphic design to increase credibility, understanding and persuasiveness, and also makes use of verbal tropes and word play to engage the viewer's attention. Rhetorical devices and puzzling messages can have the effect of drawing people in, prompting pleasure or discussion and even a change in behaviour. Narrative techniques and storytelling also organise, inform and influence, by promoting understanding through empathy and helping people make sense of experience. Stories resonate with and persuade us, fuel our imaginations and provide value through indirect experience. The Entertainment Overcoming Resistance model (EORM) for example shows that people are less resistant to a message when it is delivered through a story, and this has been borne out by examples in the healthcare sector; likewise narratives with a protagonist and coherent story (Narrative Transportation Method) have been found to encourage acceptance of and more positive attitudes towards new products and technologies.

Some ‘circular’ brands – as with mainstream businesses – use these visual and narrative devices, which are focused on the configuration and transmission of meaning, and may prove a more successful alternative to the values-based or information-only approaches used for example in environmental labelling and green marketing. Although there is not yet a more specific strategy for how and which method to apply in different CE situations, visual rhetoric and narrative represent effective potential techniques for using emotion and meaning to engage customers in new circular behaviours throughout the service journey, and this could have important implications for organisations adopting CE models as well as designers seeking to engage people in circular consumption.

The contribution of Study 1 is to provide insights into how the field of design can potentially deliver a toolbox of ways to elicit change towards a circular economy. By exploring DfSB methodologies and visual and narrative communications, a range of possibilities are uncovered as to how companies can use design to engage people with new behaviours or forms of consumption. Many of the strategies used by the businesses in Study 1a rely on narrative or visual communications, with elements of meaning and storytelling being particularly striking in addressing intrinsic concerns and providing significant scope for design; these elements are developed in Study 1b with a more specific focus on visual rhetoric and narrative communication and how they can be used to engage with people’s emotions in order to encourage action (and in Study 3 they are demonstrated in practice using research through design). Study 1 deals with change at the behavioural level, and how individual consumers can be engaged using design and communications which influence them intrinsically or extrinsically, pulling different ‘levers’ and tapping into people’s predisposition towards image and story. Further research of course is needed in order to discover which levers are most effective in which situations in order to successfully engage consumers, but this study provides many potential variables and a direction of travel. In analysing circular economy businesses from a Design for Sustainable Behaviour perspective and exploring design as a tool for behavioural change in the context of a CE, it also represents a novel contribution.

Study 2: research strategies and methods

The purpose of Study 2 was to explore methods or activities that might lead to consumption reduction in 'mainstream' consumers who had no special interest in environmental identities or values, but (in this case) had taken up the KonMari method for purely personal reasons. It aimed to investigate the impact of such wellbeing-related activities on people's interpretations and practices of consumption, and comprised a piece of empirical research about the impact of the decluttering method on shopping habits, comparing cases from the UK & Republic of Ireland and Sweden. Swedish data was collected and analysed by my colleague Åsa Callmer at KTH in Stockholm. The research was qualitative and social constructivist, using survey results from both geographies to triangulate the findings of the interviews. In contrast with previous studies, this paper took a more overtly practice-based (rather than behavioural) theoretical approach, referring to David Evans's 'moments of consumption' framework to describe the different stages of the consumption process, as this acknowledged disposal as well as acquisition and seemed most appropriate in the context of CE research. The participants for both surveys and interviews were recruited from the KonMari Facebook groups for Sweden and the UK & Republic of Ireland (membership 11,000 and 19,000 respectively) with a total of 318 survey responses received from Sweden and 314 from the UK & Ireland. The surveys gathered socioeconomic information about the participants and focused particularly on their feelings and activities with regards to current belongings as well as new acquisitions, both before and after practising KonMari. Interviews also focused on the experiences of participants as regards their consumption practices, going into more depth about people's motivation for starting KonMari and what it meant to them, and changing interpretations or feelings towards material goods both in terms of current possessions or living environments and of shopping for new items. It is worth noting that none of the interviewees had taken up the decluttering method for sustainability reasons but rather to increase their personal wellbeing. The semi-structured interviews lasted 45-60 minutes and were conducted mostly online, with 11 Swedish and 12 UK participants. Stories are 'a way of knowing', and during interviews people tell their own story by reflecting on, selecting and making sense of aspects of their experience in order to create meanings; interviewing is a foundational method of inquiry in the qualitative research tradition and requires researchers to put their own ego to one side in order to pursue an interest in understanding the lived experience of the interviewees, and to be aware of the moral implications of the method (Seidman, 2013, pp. 7–13). The interviews were analysed by looking for patterns and finding variations and relationships amongst the data, assigning qualitative emic and etic codes using Nvivo software and iterating the process, with attention paid to the validity of the data, interpretation and evaluation (Belk et al., 2013a). Results showed very similar findings in the two Northern European countries, serving to increase internal generalisability and the likelihood of comparable findings amongst KonMari practitioners in other affluent Western geographies (Maxwell, 1992). Nevertheless, in the tradition of qualitative research the aim was understanding rather than generalisation. Participants for both surveys and interviews were self-selected from the Facebook groups and as such there was a bias in favour of those who were positively engaged with KonMari. Since the research was not about the success of the

method itself but the relationship between KonMari decluttering and its transformative effect on consumption meanings and practices however, it seemed to be more useful to study enthusiastic participants of this community rather than those who may have read about but not fully put it into practice.

Study 2: results and contribution

This empirical study presents the consumption experiences of practitioners of the Marie Kondo decluttering method in Sweden and the UK. It describes the concept of 'sufficient' or slower consumption as a necessary contribution to a CE and reviews some literature from the field of sustainable consumption (voluntary simplicity, wellbeing) to supplement this approach, whilst also acknowledging the complex relationship between material goods and wellbeing. Material interaction is important for human wellbeing, and indeed according to design and sociology literature it can facilitate transformation through performance or reflexive practice. The activity of decluttering may be seen as a form of ritualised interaction with the materials that surround us in our homes on a daily basis, and concepts of performance and materiality are important in design as well as theoretical approaches such as material culture and social practice theory. Value emerges through such forms of material interaction, and in such a way meanings may also be reoriented and shifted.

Results showed that engagement with the method was often sparked by internal or external crises as well as just reading the book, and that for most people the repercussions went far beyond having a tidier home, also affecting their mental health or control and freedom in other aspects of their lives such as time, money or routines and often prompting them to feel guilty or think more about the destination and environmental implications of items they were getting rid of. The ritualised process of physically going through each of the items in their homes in defined categories to see whether they 'sparked joy' (i.e. test their emotional reactions) also seemed to clarify participants' sense of what made them feel good and what kind of material resources they wished to be surrounded by (their 'joydar'), and reportedly reduced their capacity for impulse shopping significantly. This was borne out by the survey results (see figures 19 and 20) which showed that people's approach to shopping changed quite radically in both localities after they performed the KonMari process.

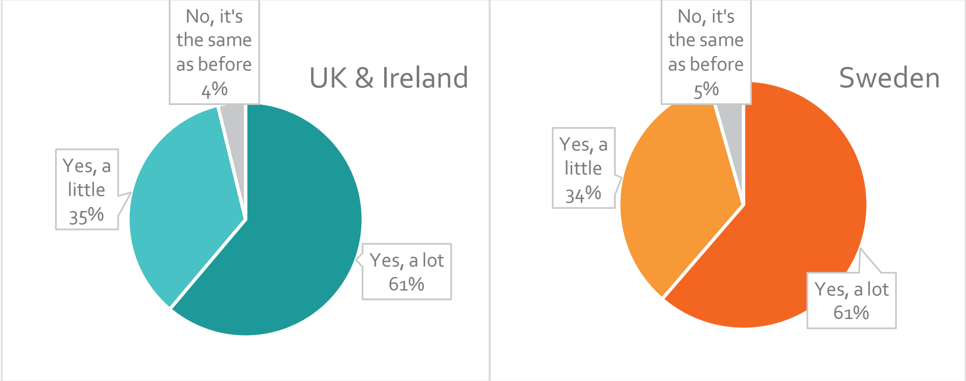


Figure 21: Shows the survey answers to the question 'Has your attitude towards buying new things changed after you started KonMari?' in the UK and Sweden (see Figure 1 and 2 in Paper 4).

The vast majority of interviewees also suggested that the KonMari method had prompted them to change their approach to consumption, and particularly the moment of acquisition, by changing the meaning of their material environments and the objects they brought into it. By reinforcing appropriation and appreciation, and often initially accelerating devaluation, divestment and disposal (see Figure 21), KonMariers seemed to slow down acquisition. Rather than wanting to stop shopping, as might have been the case with those giving up acquisition for values-based reasons, these KonMari participants seemed to stop wanting to shop, as their priorities or sense of wellbeing had shifted, the meaning of material possession had been redirected and they wished to maintain their newly decluttered environments. As the figure also shows, KonMari seems to disrupt the usual consumption journey (i.e. acquisition through to disposal) by starting in and reinforcing the middle stages, accelerating the later stages and, as a result of the associated change in approach to or the meaning of shopping, slowing the initial phase of acquisition.

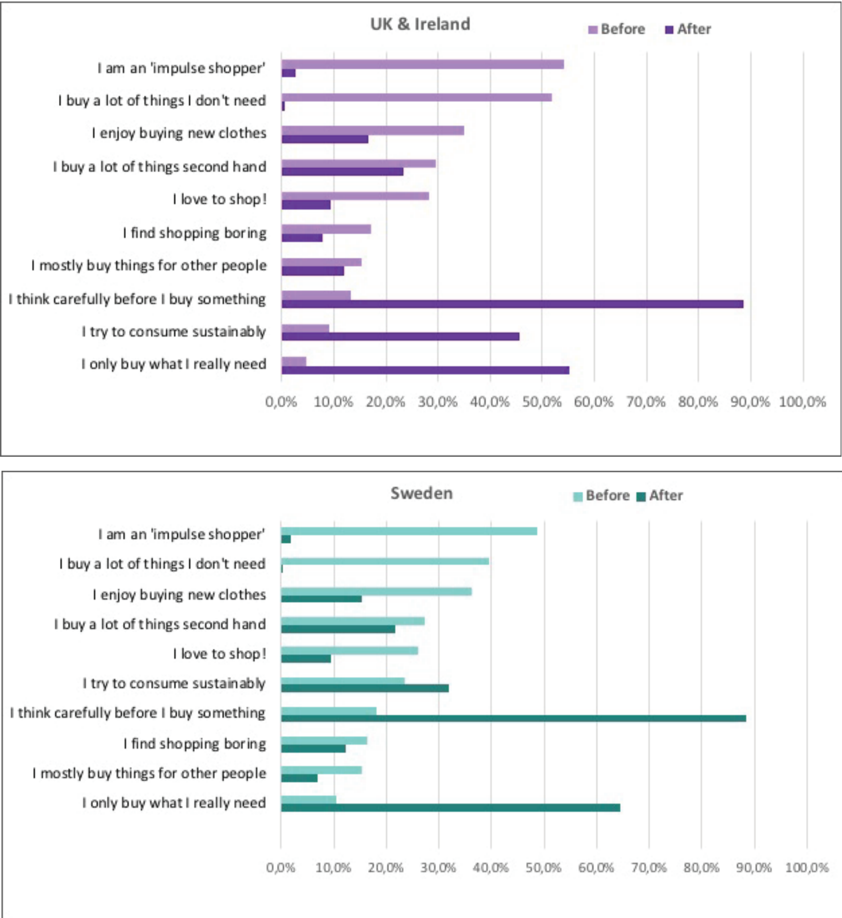


FIGURE 22 (3 AND 4 IN PAPER 4) SHOWS THE KONMARIERS' RESPONSES TO SURVEY QUESTIONS COMPARING THEIR CONSUMPTION HABITS BEFORE AND AFTER THEY STARTED WITH KONMARI. THE RESPONSES ARE SORTED BY ANSWER FREQUENCY IN THE 'BEFORE' CATEGORY.

Although most interviewees claimed that the shift was permanent and they had maintained their new approach for 1-2 years, a longitudinal or ethnographic study would be required to ascertain the risk of rebound and independently verify the claims in the interviews and surveys. A material flow analysis would also demonstrate actual reduction in material resource use. Nevertheless, it is suggested that there is a correlation between the KonMari decluttering method, which increases focus on how people feel about their material environment and its impact on their wellbeing, and reduced acquisition or the 'unintentional' slowing down of consumption through a changed approach to shopping.

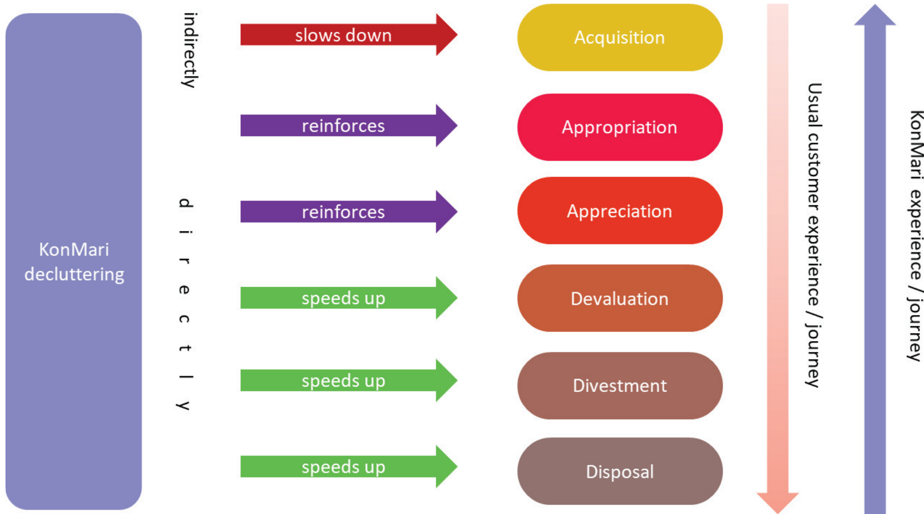


FIGURE 23: THE KONMARI METHOD SEEMS TO REINFORCE APPROPRIATION AND APPRECIATION, TO SPEED UP DEVALUTION, DIVESTMENT AND DISPOSAL AND AS A RESULT TO SLOW DOWN ACQUISITION.

Study 2 provides insights at the practice level as to how decluttering rituals and a focus on wellbeing may have an incidental impact on consumption and particularly shopping (acquisition) activities. Most people have priorities which take precedence over their environmental values or identities on a day to day basis, and therefore it is important that such 'mainstream' consumers can be engaged with circular or sufficient consumption by other means than through messaging that appeals to these values – for example, as an unintentional result of activities which they may be more strongly driven to perform, for instance those related to their own wellbeing. This is consistent with a social practice theory approach of how practices may influence and feed into each other and create new practices and meanings, and represents an important contribution of the study that designers and other circular influencers or communicators should be aware of.

In a way, this study shows how the consumer or declutterer may become the designer of their own home – and this seems to have a knock-on effect on other activities or feelings of wellbeing in their life too. The study both builds on and departs from Study 1 in exploring aspects of meaning, including the role of interaction, reflection and materiality in contributing to shifts in meaning, and focusing on a new level (practice

rather than behaviour). It represents in-depth empirical research that uses the case of a popular household activity (decluttering) to investigate links between wellbeing and sustainable consumption, and provides designers and others with greater understanding around intervention points. The findings could provide an important route towards engaging mainstream consumers (i.e. those not primarily motivated by sustainability or environmental considerations) with alternative or reduced consumption as part of a circular economy (i.e. through appealing to wellbeing), and indeed provide fresh avenues for research. Again, further discussion takes place in Chapter 6.

Study 3: research strategies and methods

The final study was a practical project called Future Consumer that was conceived as *'an interactive exhibit based on design research that uses storytelling, performance and fun to question people's preconceptions around clothing, tap into their emotions and help them to take part in a future circular economy.'* The idea for the project emerged from background research into future-focused design methodologies, together with a collaboration with a master student at the Department of Design, Ragnhild Finsveen Liven (Liven & Boks, 2019), and the opportunity to take part in Trondheim's Big Challenge Festival in June 2019 that coincided with a desire to take my research to new audiences and engage with people outside of academia. Part of the festival was an exhibit called Futurum which focused on 2050 scenarios for the city, aiming to use science and sustainability research at NTNU to engage audiences' imaginations with visions of projected and alternative futures, 'flipping' the concept of a museum by taking a participatory, normative and localised approach (see table 9) and in so doing echoing the bid for a more normative, inclusive and human-centred design culture by, for example, Krippendorf and Julier (as described in Chapter 2.3).

Museum	Futurum
Conserves the past	Creates futures
Objects in focus	Process in focus
Invites observation	Invites participation
Descriptive orientation	Normative orientation
Expert authority	Polyphonous and inclusive
Generic audience	Community-based

TABLE 9: INITIAL BRIEF FOR THE FUTURUM EXHIBITION, SET BY THE ORGANISERS

The Future Consumer module provided an opportunity for combining some insights and themes from the previous studies, such as narrative and visual communications based on Study 1 and a practical 'spark joy' exercise based on Study 2, thus combining science with imagination, present with future and creating a platform to spark debate and disseminate the research as well as gathering further data and insights. In order to fulfil the brief for the exhibition as well as taking account of previous studies and creating something with dissemination value, the project represented a form of research *through* design (Fallman, 2008; Frayling, 1994), incorporating approaches from Design Activism and Speculative Design as well as examples from other exhibitions (Kim, 2013; Norris, 2017) in an ideation process through which the themes of 'provocation' and 'reflection' emerged. The research paradigm for this module was qualitative in its focus on the multiple perspectives and meanings of participants, emergent design and the interpretation and transformation of the world (Creswell & Poth, 2018; Denzin & Lincoln, 2011). It was also performative in that it represented a practice-based, emergent approach that combined aspects from several research

frameworks or design methodologies, a process of prototyping, iteration and exhibition design and an experiential outcome presented through image, material and performance as well as verbal text. In its agenda for change and incorporation of action-based inquiry, it also represented the Transformative framework of research.

Figure 24: the Future Consumer project involved user research, prototyping and development phases

The module was the result of many stages of user research and development, including mood boards, future vision mapping, a survey and interviews with some local consumers about items they wished to keep for 30 years and their projections for the future, interviews with visitors to a clothes swapping event, and digital and 3D prototypes. The contexts of fashion and local shops in Trondheim were chosen to make the exhibition as universally relevant as possible as well as to elicit aspects of emotion and identity in the responses. Data collection and documentation of visitors' responses was incorporated as part of the display, on the Marie Kondo 'wall of feelings' and the

interactive 'survey' using textile squares, as well as through ethnographic-style observation, photography and short interviews. Ragnhild and I also reflexively examined our own assumptions and impressions during and following the exhibition, recording a reflective discussion on the process and outcomes and acknowledging how data are both gathered and also produced at the site of research (Sunderland & Denny, 2007).

Study 3: results and contribution

The practice-based project presented in Paper 5 was designed to build on earlier studies and particularly on concepts of storytelling, materiality, performance, emotion and imagination. It comprised a physical exhibition piece in two shipping containers named 'Future Consumer' which formed part of the Big Challenge Festival presented in Trondheim, Norway in June 2019, and used speculative, activist design approaches based in local culture to engage people with future scenarios for clothing. It is often difficult for people to imagine sustainable or circular futures that do not yet exist, so this exhibition was intended to play with current perceptions and realities and help people to question these by suggesting viable alternatives. If people act according to what things mean to them, then changing the stories they tell themselves about the world around them may be critical – and design has a key role in meaning creation and behavioural reorientation. As cultural intermediaries, designers structure practice, and Design Activism has emerged as a counter narrative to challenge current patterns (e.g. of linear production and consumption) through creative intervention, whilst Speculative Design has also emerged to explore 'what-ifs' free from commercial restraints and provoke imagination, reflection, discussion and debate.

Figure 25: Container 1, 'Provocation', displayed two future 'concept' stores based on current shops in Trondheim. These represented 'first life' and 'second life' scenarios for clothing and extrapolated CE concepts such as reuse, repair, longevity and sustainable material selection (as well as the design methodologies already described) to show how the stores might 'look and feel' in 2050.

After the process of ideation, development and user-focused research, we settled on concepts of ‘provocation’ and ‘reflection’ that would present research *through* design, eliciting emotional responses whilst anchoring the project in local clothing cultures. Container 1 was inspired by existing stores in Trondheim which had a ‘circular’ or sustainable ethos, and which we worked with to extrapolate future versions of the stores based on ‘first life’ and ‘second life’ clothing (i.e. timeless styles, long-lasting materials and repair, or upcycled fabrics and customisation). Stories about the provenance of the garments or the ‘real-life’ residents who wear them were incorporated to provide a persuasive and engaging narrative and reinforce social norms (building on findings from Study 1). Container 2 built on the KonMari research in Study 2, with mirrors and an interactive wall chart encouraging visitors to gauge their feelings about their clothes (did they ‘spark joy’?) and share these on a sticky note; they then took part in an interactive survey by hanging pieces of fabric on hooks to answer questions and build their own story of habits and choices relating to clothing. In a similar way to Kolb’s well-known learning cycle, the creation of the exhibition saw Ragnhild and I enacting a process of abstract conceptualisation, active experimentation, concrete experience and reflective observation (Kolb & Kolb, 2013, p. 8). Visitors too were encouraged to reflect on their experience and, through the experiment, to conceptualise alternative futures for clothing.

FIGURE 26: CONTAINER 2, 'REFLECTION', USED THE KONMARI METHODOLOGY TO ASK VISITORS TO COMMENT ON HOW THEY FELT ABOUT A PIECE OF CLOTHING AND THEN TO INTERACTIVELY ANSWER QUESTIONS ABOUT THEIR CLOTHING-RELATED BEHAVIOUR PATTERNS.

People tended to leave positive comments about their clothing on the wall chart, perhaps because of the good weather or selecting their favourite clothing item to write about – or because they genuinely felt great in them. More than 300 people took part in the 'my clothing' interactive survey, and the data suggested many themes - for instance that people do not wear, or get rid of, things they don't feel good in or are tired of, thus reinforcing the importance of emotions when it comes to resource use and waste. Further interviews and observations revealed that visitors enjoyed the elements of fun and interactivity in these exhibits, and the textile survey in particular served to highlight feelings of cognitive dissonance or reassurance when it came to matching values with behaviours.

I USUALLY SHOP FOR CLOTHES		**I often look for…**		**I rarely or never use some of my clothes because…**	
On impulse	43	Certain styles or trends	41	I don't want to be seen in the same outfit	1
When I've seen someone else wearing something nice	15	Things that are quality or will last	102	I can't see what's at the back of the wardrobe	51
When I'm bored with the stuff I own	85	Specific brands	9	I don't feel good in them	152
To cheer myself up	31	Functionality	89	The garments aren't trendy any more	8
As a fun activity with friends or family	23	Sales or bargains	61	The garments are old or worn out	53
After careful consideration	98	Originality or uniqueness	62	I have changed my style	49
When I have almost nothing left to wear	72	Where or how the garments were made	14	I use all the garments I own	41
When I get rid of my clothes it's because…		**The way I get rid of clothes is to…**		**In the future, I want to…**	
They are damaged or worn out	141	Put them in the rubbish bin	26	Express myself better through clothes	14
They don't fit me any more	112	Give them to charity	231	Only have clothes that I love and will wear often	124
I don't know how to mend them	11	Resell them online	9	Spend more time repairing my clothes	31
I'm tired of them	72	Swap them with others	12	Rent clothes, instead of buying them	8
They are out of style	5	Give them to friends or family	50	Sew my own clothes	34
I need to make space for new ones	7	Use the material for something else	15	Go for quality instead of quantity	116
I want to earn some money	4	Put them in the garage or attic	10	Shop more second hand	68

Table 10: results of the interactive 'My Clothing Story' textile exercise in Container 2

These interactive and ethnographic methods followed a paradigm of cultural analysis, in order to collect data that presented people's feelings about their clothing, responses to the display, and insights into their behaviours and interpretations associated with clothing. The value was as much in the process as the results, as it was an exercise in determining how futures of circular clothing could be presented to the public and made engaging through design. Of course, the exhibition also provided a valuable point of contact with several thousand 'ordinary' people outside of academia, and an opportunity to use research insights as a potential means of engaging them and having an impact on consumption meanings or behaviours (though measuring these impacts is challenging and would require a more longitudinal study).

The Future Consumer exhibition thus served as an opportunity to weave together themes and concepts from the previous studies about the importance of storytelling, performance, materiality and reflection into a practical, 3D exploration which also incorporated elements of speculative and activist design. It was an exercise in experimenting with the 'look and feel' of a future circular economy and how this could be communicated with people directly, and represented a novel contribution in using speculative design as a methodology for understanding and showcasing a circular economy context. It both incorporated and moved beyond the behavioural and practice levels to explore design at a cultural or systemic level, using many different variables (futures, performance, interactive display) to engage people through emotion, reflection and activity and provoke them to consider both their own relationship with clothing as well as wider industrial, ecological and cultural systems and meanings. Enlarging upon studies 1 and 2, the emotional and meaningful aspects of clothing consumption were particularly highlighted, and the 'My Clothing Story' textile survey in Container 2 showed how people's feelings about their clothes were critical factors in their disposal activities. Again, the study provides examples of how designers and others can intervene and communicate in novel ways to encourage engagement with new forms of consumption – but this time through active participation in a civic context, and using prompts for imagination and reflection. Moving on from the individual business, consumer or practice, it also situates consumption as part of an ecosystem in which the material and the immaterial interact, physical infrastructures and accoutrements (e.g. shops, clothes, supply chains, waste streams) are influenced by the meanings, emotions and interpretations of people who use or come into contact with them, and from these interactions new meanings and possibilities for transformation emerge.

The displays in Container 2 were transferred to the Science Museum in Trondheim after the festival, where they were used as a teaching tool for schools and received positive feedback from staff and curators. Following the publication of Paper 5, an interview was conducted with two school coordinators to understand how the exhibit was being used for engaging students with concepts of circular and sustainable consumption, and how this was received. The coordinators reported that the interactive elements as well as the infographics had made an impact on and provided useful starting points for discussion with the students, many of whom were highly fashion conscious yet unaware of the environmental implications of the industry. It is hoped that this and future interviews can be incorporated into a more detailed exploration that leads to a journal publication and further research, but it is likely that this will have to wait for the end of the coronavirus pandemic.

Chapter 6: Discussion and limitations

Discussion

This thesis addressed the relationship between the fields of circular economy, consumption and design and asked the question,

> **In what ways can design frameworks and methodologies contribute to people's engagement with new forms of consumption as part of a circular economy?**

It addressed salient research in these three areas before presenting studies that used different approaches and methodologies to conceptually and empirically explore the question from different angles (see table 11). In Study 1, behavioural design and DfSB perspectives were used to examine the marketing communications of companies providing consumers with products or services that could be described as circular, and to differentiate such an approach from traditional marketing. Concepts of framing, storytelling and visual rhetoric were also introduced in Study 1b, emphasising the role of emotion and narrative, as opposed to factual information, in engaging people with a message. In Study 2 a practice theoretical perspective was used to introduce the 'moments' of consumption, with sufficiency or slower consumption seen as an important contributor to a CE. The ritual and material focus of the decluttering process was presented as a means for reflection and change, and wellbeing as a potential entry point for mainstream consumers to 'unintentional' sufficient consumption. Study 3 combined elements from Studies 1 and 2 in a practical and culturally situated display of future circular consumption, based on concepts from Speculative and Activist design and exemplified by the fashion industry. Elements of storytelling and image as well as concepts from Design for Sustainable Behaviour were integrated with practice-based and reflective elements in an exhibition that emphasised the importance of imagination, emotion, materiality and performance. Each study took the perspective of a different 'designer' (i.e. company, consumer or user and public sector) and focused on a different 'new' form of consumption (i.e. circular product or service, sufficient or slowed consumption and circular industry or system). This was also reflected in the three 'levels' of the studies (see figure 25) which reflected different loci or points at which design could intervene to create change.

	Study 1	*Study 2*	*Study 3*
Level of engagement	Individual consumer	Consumption practice or 'moment'	Local culture or industry sector
New form of consumption	Circular product or service	Sufficiency /slower consumption	Circular industry / system
'Designer'	Company / commercial designer	Consumer / user	Public sector /citizen
Theoretical framework	Design for Sustainable Behaviour	(Design for) Practice Theory	Speculative Design and Design Activism

TABLE 11: THE LEVEL OF ENGAGEMENT, NEW FORM OF CONSUMPTION, 'DESIGNER' AND MAIN THEORETICAL FRAMEWORK OF THE STUDIES

The research questions for each of the studies were as follows:

Preliminary discussion: *What is the salient state of research in the areas of circular economy, consumption and design and how do these relate to each other?*

Study 1: *What kind of marketing strategies are currently used by companies attempting to engage consumers with CE, and how can design provide insights or improvements on these?*

Study 2: *What is the impact of wellbeing (rather than sustainability)-led activities such as KonMari decluttering on consumption meanings and practices?*

Study 3: *What is the potential for design futures and performance to engage people with circular consumption cultures, and what could future circular consumption look like in practice?*

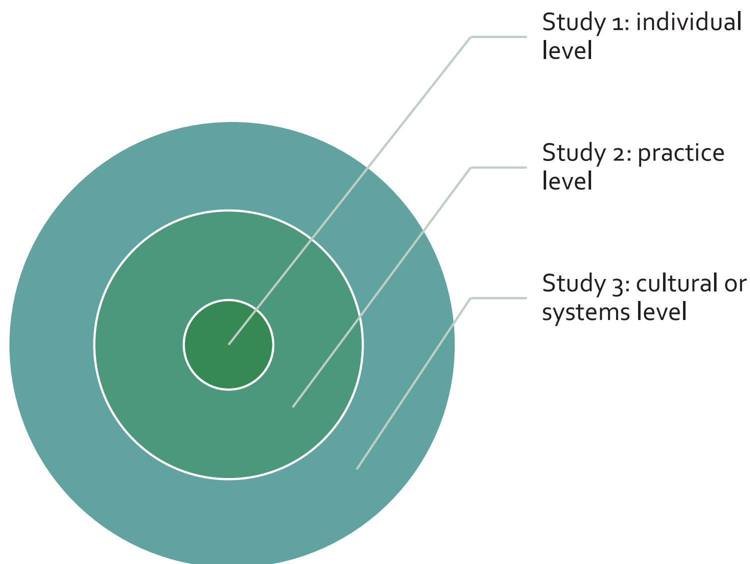


Figure 27: The 3 studies took different approaches to design as a tool for engaging people with new forms of consumption at three levels or loci of change

As discussed in Chapter 2, using design as a tool for sustainable behaviour or practice change (rather than for creating sustainable products, services or business models) is a relatively new field of inquiry, and it had not been specifically connected with work on the circular economy before. This is also the case with Speculative Design and Design Activism approaches, which had been used to challenge and question future technologies and social injustice, but (as far as I am aware) not previously employed to address issues associated with a CE. Moreover there had been little focus on consumption in a CE context, particularly in terms of empirical studies, as well as less integration of cultural or sociological perspectives into work on sustainable consumption. Policymakers, for instance, had usually relied upon psychological or values or choice-based perspectives, relying upon the rational decision-making abilities of the consumer rather than taking so much account of their conflicting

priorities, social and material infrastructures, identity, habits or feelings. The so-called 'unmanageability' of consumers is an important topic that has been highlighted by cultural research but has perhaps not yet been properly acknowledged by sustainable policymaking or design practitioners for instance. Its counterpart in the field of design could be seen as the concept of users 'acting back', interpreting products or services in their own way and ultimately co-creating or co-designing their world – again, a topic which has not yet been fully acknowledged in the creation of new designs and business models for a circular economy. Krippendorf's conceptualisation of a move from a functionalist society towards design culture (see Table 1) similarly emphasises a shift in focus from technology-centred to human-centred design, from finding solutions to proposing futures, negotiating meanings and transforming possibilities into realities.

In terms of designing behaviour change and the scale from 'informing' to 'determining' (see figures 12 and 15 and also Figure 26 here), the research in this thesis may be seen as situated in the central area of persuading, seducing or encouraging change – neither providing mere unembellished data and relying on people's values or better judgement, nor forcing them to take a particular action through designing material infrastructures. Strategies such as the use of narrative or image in Study 1b, or those highlighted by the dimensions of behaviour change or design with intent in Study 1a, attempt to influence consumers without exerting manipulative control or determining the outcome. Both here and in studies 2 and 3, a major focus is how the dimension or aspect of meaning can be influenced through elements of storytelling, visual stimulation, material interaction or reflection and performance. Rather than being forced to change their mindset or their behaviour, people may come to interpret their actions or environments in a new way, and design can be seen as a creative agent that enables this transformation.

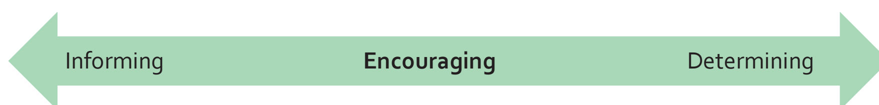


FIGURE 28: THE THESIS FOCUSES ON THE MIDDLE AREA OF 'ENCOURAGING' RATHER THAN FORCING OR MERELY INFORMING CHANGES IN CONSUMPTION

As a cultural intermediary, design has the potential to both stimulate overconsumption and to work in an alternative direction, encouraging circular products and services, reduced consumption or systemic change. The thesis has highlighted the use of design, not in a conventional sense as a tool for shaping aesthetic form or creating user-focused functionality (for instance) but in the shaping of new behaviours and practices, introducing new stories and performances and inducing reflection to create change. Design can be a highly political tool and its effects depend upon the context, tools, materials, and intentionality with which it is used, for instance whether the aim is to create profits for companies as part of an exponential growth economy, or to measure human resource use and consumption in line with the ecological boundaries of the planet. Of course, even the use of design for 'ethical' purposes can be problematic, as questions of paternalism and power enter the scene: whose ethics are being followed? Who or what does this exclude? And how can multiple conflicting interests ever be reconciled? The work of influencing change in social structures is enormously complex; nevertheless behaviour, practice and culture may all be seen as

possible intervention points which design can play a role in identifying and influencing. Design frameworks and methodologies provide a means of exploring different scenarios, actors, practices, cultures or industries, experimenting with and testing ideas in novel ways in order to define the real problem, find what should be redesigned and the most effective way of creating change – before working to bring it about. In its use of many different frameworks and methodologies, this thesis exemplifies such an approach.

In a way, the object of change is neither the person themselves, nor their context, but rather the practices that exist or the interactions that people perform within a context. In the case of Study 2, for instance, it was the practice of decluttering that seemed to lead them to shift their interpretations of and approach towards acquisition or shopping; as participants went about the ritualised and reflexive process of decluttering it seemed that new sources of value emerged, and through the interplay of humans and the material world meanings could be reoriented. Through their deliberative and emotionally engaged activities they became designers of their home environments, a kind of craft consumer with project-focused ambitions which had unintended consequences for their patterns of acquisition. Of course, the original intention was about personal wellbeing rather than sustainability or circularity, but the topic of wellbeing and its links with sustainability or circularity is an interesting one, particularly in the context of the growing 'self care' movement. The connection has been suggested before, but there is a lack of empirical research as to how personal wellbeing could be used as an intervention or 'accidental' entry point to sustainability. Study 2 explores this further and concludes that KonMari decluttering has led many participants to be more attuned to the kind of material environment that brings them joy or makes them feel good – and that not wishing to re-clutter their lives afterwards is a side-effect of this. In other words, rather than wanting to stop shopping (as may be the case with those people who are strongly values-led and environmentally motivated), they stop wanting to shop as they value the newly discovered space and time more highly than the stuff which used to fill it. Of course, we were not able to actually measure the material flow into and out of their homes before and after the decluttering process, but the focus of the research was just as much about the change in meaning or interpretation which people reported as it was about the material goods themselves. Most people had previously been impulse shoppers, but after KonMari it seemed that they no longer had the same inclination to buy stuff as their interpretation of shopping had changed and it no longer held such appeal. The value of a home with less stuff seemingly became greater or held more meaning than the value of having the stuff.

In Study 3, design was used as a vehicle for experimental research and a prompt for imagination and performance. Sustainable futures can be difficult for people to imagine, so by creating a 'look' and 'feel' for clothing consumption in a future circular economy, the depersonalised and conceptual nature of circular consumption was made real and material and situated in a local cultural context. In Container 1, design provided a material conduit for imagination, making the unknown into the possible by keeping it rooted in the familiar. In Container 2 it also represented a material structure or trigger to induce reflection on current relationships, behaviours or associations with clothing – both in an individual, cognitive and emotive sense and

through discussion with others. The public setting emphasised the shared nature of these relationships and behaviours, and by implication the shared nature of consumption, circular economy and the environmental threats we face. The fact that it was rooted in a familiar setting (clothing shops and practices in Trondheim or at home) ensured that the speculative nature of the design was nevertheless tempered by reality; rather than taking a science-fiction perspective and showing a dystopian future which could disenfranchise and disempower people, it aimed to recreate and tweak contexts that they were accustomed to, providing reassurance and optimism whilst triggering the imagination. Study 3 provided an example of 'learning by doing', a performative setting in which people were encouraged to feel, to act and in doing so to consider and perhaps even reorientate the meanings and implications of their actions. Not only did it enable the visitors to learn by doing, but the project also represented a way in which the designers (Ragnhild and I) learnt by doing, exploring different possibilities for future scenarios, customers and industries and prototyping and developing accordingly. The final exhibition was the result of many hours of discussion, concept definition, trial and error, stakeholder interviews, cardboard mock-ups and organisation – and even then it was itself an experiment through which further discoveries were made. As designers our process of development involved learning through our interactions with people and materials, adjusting our designs accordingly, iterating again and making further alterations.

The concepts of meaning and action and the relationship between these two emerge as strong themes in the research. As described in Chapter 2.3, Krippendorf and others suggest that people act according to what things mean to them, and likewise that meaning is created through action. Design can therefore be seen as a kind of 'lever' or influencer which can both structure action through the way materials are created and distributed, such as in scripting, affordances or actor-network theories, and also can work to recreate or shift meaning, such that people act differently as a result. Meaning and action generally are more influenced by feelings than rational cognition, and thus in reshaping these meanings and interactions design may tap in to human emotion, imagination and reflection. Study 1 emphasises the emotional nature of narrative and visual rhetoric as well as various design strategies which can induce feelings that may lead to motivation. Studies 2 and 3 also emphasise the links between materiality, emotion and reflection – the ritualistic act of decluttering for instance providing people with material props and routines with which to trigger their reflective process. Even this ritual of reflection however is more about emotion than cognition, as people must feel what 'sparks joy' rather than over-analysing it. In the third study, performances and material props are designed to prompt emotion, reflection and imagination – integrating the present with the future and the individual with the cultural or systemic level.

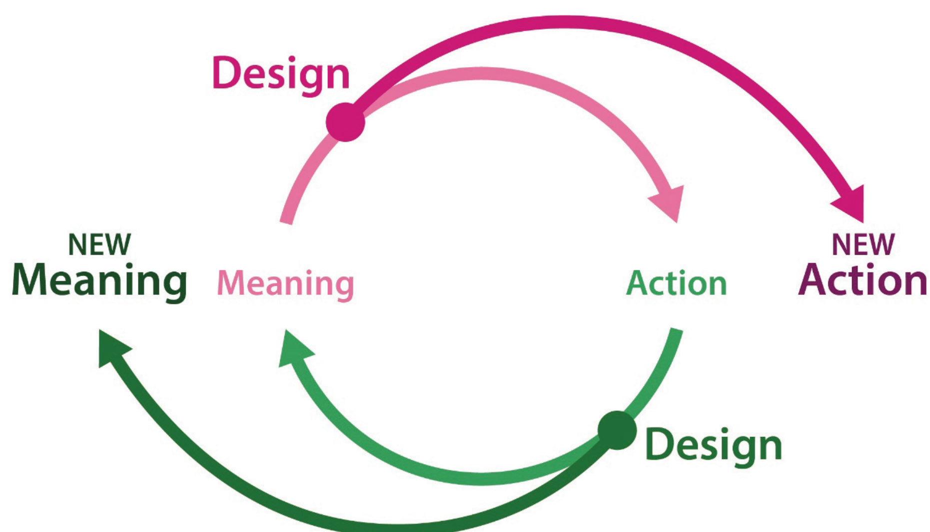


FIGURE 29: MEANING AND ACTION STRUCTURE EACH OTHER, AND DESIGN CAN ACT ON BOTH TO CREATE NEW MEANINGS AND ACTIONS

In bringing together different theoretical frameworks in the thesis, it made use of both behavioural (Study 1) and social practice (Study 2) approaches, as well as a more meta-level, cultural approach (Study 3) which used certain elements from both. Some academics have warned against attempting to combine such different theoretical perspectives (particularly behaviour and practice, e.g. (Kuijer & Bakker, 2015)) but in this instance I have not attempted to mix them together but rather to highlight that multiple perspectives such as these may be useful as different 'lenses' through which to view and redesign consumption for a circular economy. In Study 1 and 2 the perspectives are kept separate, and in Study 3 there are common elements (storytelling, performance) which are combined in a new scenario (Speculative Design) rather than trying to force together behavioural and practice approaches. In doing so, Study 3 also highlights these aspects that are common to both: meaning is a key element of practice, for instance, and is also one of the nine Dimensions of Behaviour Change. Likewise the integration and transformation of practices involves activity – and activity of course is the exact target of behavioural approaches too. Different theoretical approaches may thus contribute a variety of perspectives on the use of design in performing and integrating meaning and action in the changing of consumption. Ultimately, design may be seen as a way of communicating and engaging people with a circular economy by creating stories or performances or material structures that include elements of emotion, imagination and reflection. Rather than merely using cost incentives or factual information that appeal to values or cognitive choices or extrinsic motivation, design tools can take a more nuanced approach to communication and transformation and engage people more directly through meaning and action.

FIGURE 30: DESIGN CAN ENGAGE WITH PEOPLE'S EMOTION, IMAGINATION AND REFLECTIVE CAPABILITIES FOR EXAMPLE THROUGH STORYTELLING, MATERIAL OBJECTS AND PERFORMANCE

In policy terms, consumption has often been reduced to the choices or behaviours of shoppers, or seen as the 'remainder' of production, yet as Evans argues an understanding of the culture and sociology of consumption, rather than just the economics or politics, is critical to understanding the ecological consequences of the Anthropocene (Evans, 2018). The studies and arguments in this thesis align with several of the points made by Evans in his recent article on the sociology of consumption. He calls for a 'reorientation of critique' in acknowledging the environmental impacts of consumer culture, the issue of planetary limits and problems of overconsumption, highlights the moral complexities of caring for concerns close to home versus those at a distance, and draws attention to the responsibility of 'commercial actors and cultural intermediaries' (Evans, 2018, p. 16). His theorisation of consumption in terms of the 3 'A's and 3 'D's (in Study 2) is a useful way to conceive of the wider journey, implications and the relationship between different moments. Moreover, he draws parallels between material and cultural aspects of consumption and excess, suggesting that new cultures or ideologies of consumerism (e.g. Soper's alternative hedonism, in which the 'pleasures and functions' of consumption may be performed in less resource-intensive ways) may be necessary for redressing the balance and mitigating environmental crises (Evans, 2018, p. 16). This is a key point, and one echoed by other authors too. The impending chaos of climate change cannot be averted by imposing solutions that neglect to take account of intrinsic human requirements – such as for identity, fun or social belonging – which consumption currently fulfils. As a cultural intermediary that links and influences people and things, design can play a role in acknowledging both ecological and human challenges and needs and working to recreate the relationships between the two.

Limitations

The thesis has addressed some of the ways in which design may prove useful for engaging people with new forms of circular consumption, but as described in the Scope was inevitably limited by time and space, to Northern Europe in terms of its geographical application, and the years 2017 – 2020 when PhD funding was available.

In terms of the individual studies, Study 1 was limited in that it did not extend to researching the reactions or reception of different consumers to the online marketing communications: for instance how effective people perceive these to be, whether intrinsic or extrinsic messages are more successful for circular products and services, and how we can test the impact of visual rhetoric and storytelling on consumers at different stages along the customer journey. As described in the journal paper, Study 2 was limited in its temporal and geographical scope and in the fact that we relied on reported findings rather than ethnographic research; extending the study to more participants in other countries over a longer time and conducting a materials flow analysis would have provided more certainty over whether people were actually consuming less material resources and keeping up their KonMari lifestyles over longer periods. Moreover, the study did not explore people's motivations or the socio-demographics of the participants, for instance the impact of gender or income on the findings. In the case of Study 3 and the Future Consumer exhibition, we were limited by the brief of the festival and the space and time allocation; moreover the results were somewhat limited in that we did not conduct a longitudinal study and were therefore not able to gauge whether people remembered and were impacted by their experiences at the exhibition in the longer term: did they for instance think differently about their clothes next time they got dressed or went shopping, or did they continue as before? Of course, keeping part of the exhibition in the *Vitenskapsmuseet* in Trondheim allowed it to continue to be viewed by students and visitors, but these school visits stopped in March 2020 due to the Covid 19 pandemic and have only tentatively resumed a year later. The onset of the pandemic also meant that it was difficult to interview teachers and curators and to get a good overview into the influence of the exhibition on students and visitors, which would have provided better evidence of its ongoing impact. Although most research for the thesis was conducted before the pandemic, it proved somewhat disruptive in this instance and also in terms of the write-up of the thesis, which was delayed some months beyond the original deadline.

As described in the Scope, there are important trends towards digitalisation, how consumption habits themselves increasingly take place in an online world and how behaviours or practices or cultures are changed or performed through digital media, which are not within the remit of this thesis. Likewise the fields of communication theory, marketing and behaviour change research, not to mention consumer culture, material culture and sociology more widely, would provide numerous insights and resources which have scarcely been touched upon. Although many design theories, methodologies and interventions were explored, there are many others which were not: transitions design could have provided further insights, for example (Ceschin & Gaziulusoy, 2016; Irwin et al., 2015; Tonkinwise, 2015), as could actor-network theory or Geels's multi-level perspective (Geels, 2011; Pettersen et al., 2013). Even the topics of Design for Sustainable Behaviour and Design for Social Practice have only been explored in a limited way, and it would for example prove useful to conduct further empirical, conceptual and practice-based studies in order to expand upon this knowledge in the field of design. Moreover, the research was largely desk-based and as such practical design-based experimentation was also limited.

The studies represent and explore diverse design approaches and methodologies for tackling the issues of consumption in a CE, taking a broad approach that is in keeping with this new field of investigation and demonstrating possibilities for further discussion and action. However, this meant that on the whole insights and ideas were generated rather than fully developed design solutions or conclusive policy inputs, a limitation which nevertheless provides fertile ground for further explorations in these areas.

Chapter 7: Conclusions and Recommendations

Conclusions

The original research question for the thesis was,

In what ways can design frameworks and methodologies contribute to people's engagement with new forms of consumption as part of a circular economy?

The work in this dissertation has focused on the relationship between consumption, circular economy and design and how different design tools or practices can be used to change patterns of consumption that are contributing to the destruction of life-supporting planetary ecosystems, in order to bring about a more circular economy. The three studies have focused on different theoretical or design perspectives and found that behavioural, practice theory and cultural or future-focused approaches can all provide useful insights into how people may be engaged with consumption change. Strategies of storytelling, performance and material intervention for instance may engage with people's capacities for imagination, emotion and reflection in a more effective and lasting way than factual information or extrinsic motivations alone. Moreover design may engage people more directly through the loop of meaning and action and provide more nuanced responses both in terms of an intervention itself and in finding the best way to create or find and intervention point.

The research questions and conclusions for each of the studies were as follows:

Preliminary discussion: *What is the salient state of research in the areas of circular economy, consumption and design and how do these relate to each other?*

Design may be seen as a powerful cultural and communicative tool that has the ability to shape experience, create meaning and value and influence socio-cultural regimes such as those implicated in consumption. It has often been co-opted by commercial interests, yet also has potential for helping to recreate consumption around a more sustainable or circular model. There has been little research to date however on how design can address CE beyond the product level, or how design and communication can engage with or influence consumers or change patterns of consumption. There is also a lack of research when it comes to unintentional entries into sustainable consumption by 'mainstream' consumers. In the field of sustainable consumption, psychological approaches to behavioural change predominate for example amongst policymakers, but these have been shown to be problematic in some respects. Cultural or sociological approaches can be more difficult to implement but may provide greater understanding of consumers' complexity, for example conflicting identities or the issue of inconspicuous consumption; moreover social practice theory locates agency outside the individual consumer. Design may be conceptualised as a cultural intermediary and tool for communication or intervention, which makes use of a variety of media and methodologies; it can be an important player in the creation of more sustainable systems and behaviours, and in the creation, intermediation and transformation of meaning, action and value.

Study 1: *What kind of marketing strategies are currently used by companies attempting to engage consumers with CE, and how can design provide insights or improvements on these?*

Study 1 analyses circular marketing strategies from a Design for Sustainable Behaviour perspective and explores design as a tool for behavioural change in the context of a CE. Companies currently use many intrinsic and extrinsic prompts to persuade consumers to buy circular products and services, and DfSB methodologies such as the Dimensions of Behaviour Change and Design with Intent provide a useful way to analyse these, offering insights into how a more nuanced approach may be provided by a design perspective. Many of the strategies used by the businesses in Study 1a rely on narrative or visual communications, with elements of meaning and storytelling being particularly striking in addressing intrinsic concerns and providing significant scope for design; these elements are developed in Study 1b with a more specific focus on visual rhetoric and narrative communication and how they can be used to connect with people's emotions in order to encourage action. Study 1 thus deals with change at the behavioural level, and how individual consumers can be engaged using design and communications which influence them intrinsically or extrinsically, pulling different 'levers' and tapping into people's predisposition towards image and story.

Study 2: *What is the impact of wellbeing (rather than sustainability)-led activities such as KonMari decluttering on consumption meanings and practices?*

Study 2 provides empirical insights at the practice level as to how decluttering rituals and a focus on wellbeing may have an incidental impact on consumption and particularly shopping (acquisition) activities. Motivated by increased personal wellbeing (rather than sustainability), participants of the popular KonMari decluttering method become 'designers' of their home environments, ritually interacting with and reflecting on their material possessions to decide how they feel about them and whether they 'spark joy'. An unintentional effect of the decluttering is that most people significantly reduce their impulse shopping habits, and hence the study provides an important potential route or intervention for designers or others trying to engage 'mainstream' consumers with alternative or reduced consumption as part of a circular economy (i.e. through appealing to wellbeing). Ritualised material interaction in this instance provides access to emotion and also to reflection, which appear to enable a shift of meaning and then of action, in the direction of sufficiency and more circular consumption. The links between wellbeing and sustainable consumption, and between material interaction and shifts in meaning, provide interesting avenues for further research.

Study 3: *What is the potential for design futures and performance to engage people with circular consumption cultures, and what could future circular consumption look like in practice?*

Study 3 involved the physical construction of an exhibition called Future Consumer held in Trondheim in 2019 which incorporated some of the themes of emotion, storytelling, meaning, reflection and material interaction from studies 1 and 2. It used Speculative Design and Design Activism approaches to show how a physical display could be used to fire people's imaginations by communicating the potential 'look and

feel' of a future circular economy. Moving beyond behavioural and social practice levels to present and explore futures of clothing at a systemic, cultural level, the exhibition demonstrated how alternative scenarios for fashion consumption in a circular economy could be developed, rooting these in familiar localised settings to enhance believability. It also showed how people's emotional relationship with their clothes has an impact on purchasing and disposal behaviours. Aspects of storytelling and interactivity encouraged visitors to reflect on their emotions and behaviours around clothing, and the visual props and participation aids provided prompts for imagination and reflection. The Future Consumer exhibition provided ground for further research and showed consumption as part of an ecosystem in which the material and the immaterial interact, physical infrastructures and accoutrements (e.g. shops, clothes, supply chains, waste streams) are influenced by the meanings, emotions and interpretations of people who use or come into contact with them, and from these interactions new meanings and possibilities for transformation can emerge.

Recommendations

Based on the findings, more specific recommendations for different groups may be useful and are provided here:

Design practitioners

Designers could consider and explore multiple possible methodological and practical perspectives for engaging people with CE and alternative consumption, for instance moving outside the behavioural and psychological paradigm to embrace cultural and practice theories from sociology. The use of emotion, imagination and reflection in interventions is important and creates a contrast with factual, information-deficit or values-based approaches. Storytelling, performance or material design may be more effective for instance or represent novel ways to communicate new forms of circular consumption with people. In a similar way, design practitioners could do well to consider the reciprocal role of meaning and action in creating or performing change, and how design can influence this to provide new meanings and actions for a CE. A further route for exploration is the connection between wellbeing or other motivations which may be linked to and indeed prompt sustainable consumption activities as an unintended effect. As cultural intermediaries, designers play an important role in influencing culture and as such should be mindful of their responsibility to consider the impacts of their creations and indirect influence on planetary life support systems for generations to come. In other words, they should consider whether to contribute to overconsumption or to endorse and try to influence the spread of more ecologically sound approaches that take account of the interconnectedness of animate and inanimate systems.

Policymakers and NGOs

Having traditionally relied upon psychological and behavioural theories from sustainable consumption, it is time for policymakers and NGOs to look to sociological and cultural perspectives and the more nuanced, contextualised approach channelled by design, in order to gain closer understanding of consumers as complex people with conflicting priorities who are often influenced by structures, habits and norms - rather

than being rational choice-makers. Policy research and implementation could benefit from a more creative approach, such as using storytelling or visuals or interactivity to engage people emotionally as well as cognitively with new research or policy. Policymakers should also consider making greater use of design researchers and practitioners in the creation and implementation of new policy – to explore the best places to intervene in a sector or system as well as discover effective ways to create change. Designers can be skilled in thinking in systemic ways about different scenarios and stakeholders, considering relationships and interconnections and contrasting or even conflicting requirements. Policymakers could also look at local cultural or popular global trends as a way of introducing and linking these to circular or sustainable consumption, making it more familiar or using such trends as a 'piggyback' as in the case of accidental or unintentional sustainability.

Researchers and academics

The current thesis has merely scratched the surface to try to bring together some different fields but there is scope for much more in the way of future investigation and cross-disciplinary and inter-disciplinary research. For instance between design and consumer studies, sustainable consumption and circular economy, and all of these with fields that deal with social or behavioural transformation in some regard. This should include a greater appetite within academic journals and amongst editors for cross-disciplinary work and more experimental studies that do not necessarily conform to the journal's previous biases.

The concepts of meaning and action in the context of a circular economy and how these are influenced by design deserve further academic investigation, and similarly the elements of emotion, imagination and reflection and how these have a bearing on the ways people act. Narratives and performances are perhaps more practical tropes that represent foci for a circular design research agenda – both at a micro and macro level, in terms of individual behaviours and cultural norms or meta-narratives. In theoretical terms, it could furthermore be useful to take a transition design or sustainable transitions approach to circular consumption change, including using Geels's multi-level perspective as a lens to research different niches and regimes, or using a systems-thinking approach to focus more on wider implications of change. Actor-network theory may also represent an interesting way to research the structural relations between human and material 'actors' in a system and how change emerges from these interactions. Other avenues for further research include digital communications and marketing theory.

In terms of the studies themselves, Study 1a could benefit from further investigation into the reactions of customers to the different marketing communications strategies, and the effectiveness of these. Study 1b could be developed with some empirical examples of how narrative and visual communication affects consumers in a CE context, and a more detailed exploration of narrative transportation theory or the EORM model. Study 2 has many different potential avenues of further research, for example into the relation between wellbeing and circularity and sustainability, or the links between the different 'moments' of consumption. With regards to the KonMari decluttering method in particular, it would be useful to discover more about people's motivation for taking it up – whether prompted by social norms or crisis for instance –

and also how many became more aware of issues related to waste and environment as a result; of course a longitudinal study would also be an important way of verifying whether people kept up their changed habits or relationship with their possessions, and a materials flow analysis (for instance) may help to show whether on balance the KonMari method really did slow the consumption of material resources or not. As mentioned in the article, a fuller investigation into social demographics and particularly gender identity and domestic politics when it comes to shopping, tidying and disposing could shed much light on the gendered nature of these practices and the design of future interventions as a result. Both studies 2 and 3 could benefit from further explorations of the relationship between materiality and reflection, for instance the role of scripting or presencing in social transformation and how physical objects can 'perform' new interpretations or actions. In the case of Study 3 it would be useful to conduct a longitudinal study when the exhibition reopens at the museum, in order to measure its impact on visitors; however, it is very difficult to accurately measure subtle changes in interpretation, action, behaviour or practice over time and then to attribute these to one particular experience – and so it may be that such a study also necessitates further research into suitable methodologies for conducting it. Study 3's focus on performance and interaction also suggests that further research should look into the effectiveness of a 'learning by doing' approach on behavioural transformation in CE contexts, whilst the aspect of imagination and its relation to action and change could be further explored using Speculative Design and measuring people's reactions to a specific scenario.

Companies and marketing professionals

Companies and marketeers could learn from some of the design methodologies explored in these studies – to go beyond the 'P's of price, promotion, place etc and also beyond values-based green or social marketing, and be more experimental in their approach when introducing new circular products and services. That said, if they used a more values-based approach as a company rather than greenwashing, ensuring ethical supply and waste chains rather than relying on governments and consumers, then their marketing could be more transparent and consistent with the values of the consumer. Organisations could use the customer journey framework and the 7 'R's, the nine Dimensions of Behaviour Change, Design for Intent framework or concepts of performance and future-focused design to think through new strategies and approaches to marketing and customer behaviour, and could try tapping into other popular trends such as wellbeing or using local cultures as a 'route in' to alternative consumption. As with designers, companies should consider the issue of overconsumption and whether the sustainability of their business is in line with that of the planet – or whether a more 'sufficient' approach is necessary (with the potential changes in business model, selling and marketing strategies that entails).

Circular Economy innovators

There are now many people and organisations trying to take steps towards the implementation of a circular economy, both at a grass roots and multinational corporate level. These innovators could learn from some of the other recommendations here, and from a design approach which for instance could involve exploring, testing and prototyping the innovations with different stakeholders as part of the

development phase or using visual or physical props to engage people emotionally and imaginatively with the innovations. As with policymakers and companies, CE innovators could make their innovations more palatable or ‘acceptable’ by relating them to other cultural trends at a local or global level, whilst considering that consumers have many complex priorities that often override their concerns for ecological systems or impacts that are distant in space and time. They should also consider how consumers or users act according to meaning and emotion rather than rational choice making and information, and moreover that interventions can be designed to act more directly on people’s interpretations and actions. CE innovators should furthermore ensure that their creations are aligned not only with a CE model that suits business and technology requirements but also is congruent with the concept of planetary boundaries and the necessity for reduced overall material and energy use.

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Appendix (papers 1 – 5)

Study 1a

Journal papers *(Papers 1 and 2)*

Chamberlin, L., Boks, C., Marketing Approaches for a Circular Economy: Using Design Frameworks to Interpret Online Communications. Sustainability 2018, 10, 2070. DOI: 10.3390/su10062070

Daae, J., Chamberlin, L., Boks, C., Dimensions of Behaviour Change in the context of Designing for a Circular Economy. The Design Journal 2018, 21:4, 521-541, DOI: 10.1080/14606925.2018.1468003

Study 1b

Conference paper *(Paper 3)*

Chamberlin, L., Working paper: Designing communications for a circular economy: information design and narratives for social change. In proceedings of ISDSRS, The 24th International Sustainable Development Research Society Conference, Messina, Sicily, June 2018

Study 2

Journal paper *(Paper 4)*

Chamberlin, L., Callmer, Å., Spark Joy and slow consumption: an empirical study of the impact of the KonMari method on acquisition and wellbeing, The Journal of Sustainability Research 2020 special issue, Resisting Throwaway Culture—The Role of Consumers in Achieving Sustainable Product Lifetimes, accepted

Study 3

Conference paper *(Paper 5)*

Chamberlin, L., Finsveen Liven, R., and Boks, C., The Future Consumer: How can design spark people's imaginations and engage them in meaning making around circular economies for clothing? In proceedings of EcoDesign, the 11th International Symposium on environmentally conscious design and inverse manufacturing in Yokohama, Japan, November 2019

NTNU

Declaration of co-authorship

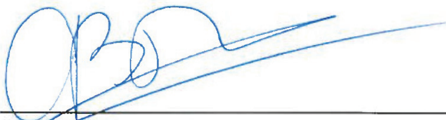
Statements of co-authorship of publications included in submission of Lucy Chamberlin's doctoral thesis:

Publication:
Chamberlin, L., Boks, C., Marketing Approaches for a Circular Economy: Using Design Frameworks to Interpret Online Communications. Sustainability 2018, 10, 2070. DOI: 10.3390/su10062070

Description of Candidate's Contribution:
The conceptualisation was conducted by LC and CB together, as was the validation. LC conducted the methodology and formal analysis, and prepared and wrote the draft paper in its entirety. Review and editing was conducted by both LC and CB.

Statement by the co-author:
I hereby confirm that the doctoral candidate's contribution to this paper is correctly identified above, and I consent to Lucy Chamberlin including it in her doctoral dissertation

Trondheim, 1.12.2020



Casper Boks

Publication:
Daae, J., Chamberlin, L., Boks, C., Dimensions of Behaviour Change in the context of Designing for a Circular Economy, The Design Journal 2018, 21:4, 521-541, DOI: 10.1080/14606925.2018.1468003

Description of Candidate's Contribution:
LC and JZD both contributed significantly to the Introduction as well as conducting Results and Analysis, Case Studies and Discussion and Conclusions sections. JZD also provided Figure 1 and the analysis for Table 6. CB equally contributed to the Introduction, Methodology and Discussion sections as well as review and editing support.

Statement by the co-author:
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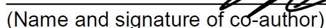

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Publication:
Daae, J., Chamberlin, L., Boks, C., Dimensions of Behaviour Change in the context of Designing for a Circular Economy, The Design Journal 2018, 21:4, 521-541, DOI: 10.1080/14606925.2018.1468003

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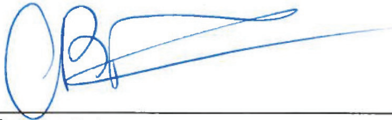


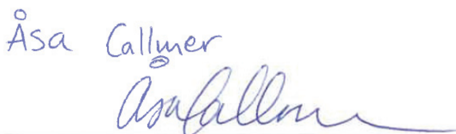
Casper Boks

Publication:
*Chamberlin, L., Callmer, Å., Spark Joy and slow consumption: an empirical study of the impact of the KonMari method on acquisition and wellbeing, The Journal of Sustainability Research 2020 special issue, Resisting Throwaway Culture—The Role of Consumers in Achieving Sustainable Product Lifetimes, **accepted***

Description of Candidate's Contribution:
The study was jointly conceived and executed by both authors, with the survey and interview guide initially conceived by ÅC and conducted by her in Sweden, and subsequently adapted and conducted in the UK by LC. The introductory and methodology sections were jointly agreed upon and written, with LC contributing particularly to sections involving circular economy, material interaction, reflexivity, sufficiency and consumption and ÅC to those involving sufficiency, consumption, wellbeing and the KonMariers. The majority of the results and discussion sections and the conclusion were written by LC, but many rounds of iteration and editing were conducted by both authors.

Statement by the co-author:
I hereby confirm that the doctoral candidate's contribution to this paper is correctly identified above, and I consent to Lucy Chamberlin including it in her doctoral dissertation

Stockholm, 3.12.2020



(Name and signature of co-author)

Publication:

Chamberlin, L., Finsveen Liven, R., and Boks, C., The Future Consumer: How can design spark people's imaginations and engage them in meaning making around circular economies for clothing? Presented at EcoDesign, the 11th International Symposium on environmentally conscious design and inverse manufacturing in Yokohama, Japan, November 2019

Description of Candidate's Contribution:

Following a brief from LC, the project was conceived and developed jointly by RFL and LC. Graphical and 3D presentation and prototyping was executed mostly by RFL, with agreement from LC who also project managed and provided content for the Future Consumer module. The conference paper was written by LC. CB provided review recommendations, editing and support throughout the project.

Statement by the co-author:

I hereby confirm that the doctoral candidate's contribution to this paper is correctly identified above, and I consent to Lucy Chamberlin including it in her doctoral dissertation

Oslo, 23.11.2020

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Publication:

Chamberlin, L., Finsveen Liven, R., and Boks, C., The Future Consumer: How can design spark people's imaginations and engage them in meaning making around circular economies for clothing? Presented at EcoDesign, the 11th International Symposium on environmentally conscious design and inverse manufacturing in Yokohama, Japan, November 2019

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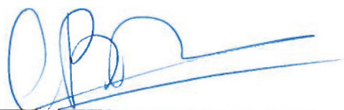
Trondheim, 1.12.2020



Casper Boks

Paper 1

Chamberlin, L., Boks, C., Marketing Approaches for a Circular Economy: Using Design Frameworks to Interpret Online Communications. Sustainability 2018, 10, 2070. DOI: 10.3390/su10062070

sustainability

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Article

Marketing Approaches for a Circular Economy: Using Design Frameworks to Interpret Online Communications

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Abstract: The Circular Economy has been posited as a solution to the rise of environmental decimation with growing global economic prosperity, by introducing new systems of production, consumption, and disposal. Current literature has explored circular economy business models, such as product service systems (PSSs), and has identified some issues that represent both behavioral barriers and motivating factors when it comes to consumer acceptance of these new models. However, there are few studies that incorporate a marketing and communications perspective on the circular economy or which focus on the ways in which businesses providing circular products or services currently use communications to market their offerings and influence consumer behavior. This paper represents an initial, exploratory study that identifies ten groups of concerns or 'factors' from the literature that affect consumer acceptance of circular value propositions. It then uses two models from the field of design (Dimensions of Behavior Change and Design with Intent) to interpret examples of web communications from four retailers of circular products and services, and to suggest future marketing and communications strategies for use in business and research. It finds that design frameworks can provide a relevant and comprehensive means to analyze marketing strategies and suggest less binary approaches than for instance green marketing.

Keywords: circular economy; communication; sustainability; design; marketing; design for sustainable behaviour (DfSB); green marketing

1. Introduction

Human existence as we know it is increasingly under threat from the pressure placed on Earth's systems by population growth and increasing activities related to production and consumption. Four of nine planetary boundaries have now been crossed as a result of such human activity, and climate change, loss of biosphere integrity, land-system change, and altered biogeochemical cycles are now putting in jeopardy the stability of global systems and the wellbeing of people in all parts of the world [1]. Businesses are under growing obligation to mitigate the effects of their externalities whilst maintaining the current model of economic growth, and are turning to concepts such as the circular economy to help them with decoupling environmental impacts from continued development [2]. An exact definition of circular economy still lacks consensus, but it is generally agreed that current business models, products and services must be redesigned so that 'linear' models ending in waste are replaced by those incorporating durability, re-use, repair, refurbishment, and recycling [2]. In the case of business models, one-off sales would be replaced by access or rental, often referred to as product service systems or PSS [3].

Until now, however, circular economy literature has mostly focused on service and business model changes, and has somewhat neglected the significant shift required from consumers to accept these

changes [4]. Ever since Edward Bernays and the transformation of the United States from a 'needs' to a 'wants' society [5], consumption has been a dominant paradigm of the 20th and 21st centuries in which our norms, values, symbols and stories have normalized the exponential consumption of food, energy and materials [6]. But increasingly urgent calls are being made to mitigate excessive consumption, and radical approaches such as sufficiency are gaining traction [7]. For now, however, a consumption-based lifestyle remains entrenched, and circular economy models such as repair or rental need to be made attractive to consumers accustomed to fast acquisition and disposal [8].

Despite the prevalence of the consumption paradigm, the power of consumer—or user—behavior has until now perhaps been underestimated [9] and underrepresented in academic literature on circular economy research. Several factors that affect consumer acceptance of circular economy-type product offerings have been identified, however these are yet to be fully tested in 'real-world' scenarios. Much of the literature focuses on business and revenue model development, and implications for supply chains and product-service development, but how these circular companies seek to influence their customers' behavior or influence the relationship they have with them through marketing and communications practices, remains mostly undiscussed. This is why we chose to explore a number of relevant frameworks for their relevance in understanding user behavior and preferences in the context of a circular economy.

The field of design for sustainable behavior (DfSB) was considered an obvious starting point as it has examined and developed models that describe the influence of product and service design on people's behavior [10], especially in a sustainability context that is central for the circular economy. However, the role of communication strategies in the application of sustainable design and behavior change [11] has remained underexplored until now, which is why we chose marketing literature, and in particular green and social marketing, as a potentially complementary field. For the most part DfSB has previously addressed the subject of behavior change for individuals during the phase of use, and has developed a number of frameworks and tools in order to do this, whilst social and green marketing have attempted to influence the choices of consumers at the purchase phase for social or environmental benefit. In deciding how to market the new offerings of circular companies, it can be useful to bring together insights from these different fields to integrate information, concepts and tools in the interests of interdisciplinarity [12], and also to explore some current practices of companies that promote circular economy models.

In summary, this paper aims to explore the applicability of design frameworks in analyzing the marketing communication strategies of businesses that promote circular activities, with a focus on communication through their websites, and to assess the potential for improving the future design strategies of other circular companies. Specifically, it asks: *what strategies for influencing consumer behavior towards more sustainable patterns are proposed in the design and marketing literature, and to what extent are these relevant and useful in analyzing the marketing communications of companies that promote circular consumption activities through their websites?* By doing so, the aim is to present a novel contribution to the discussion on how industry can engage users better in their efforts towards developing circular value propositions.

2. Relevant Frameworks from Literature

2.1. Models of a Circular Economy

Several authors have pointed to a lack of research focus on the everyday role of the consumer in a circular economy, and also on the design and business models that can facilitate or hinder these [4,9,13]. Transition to a circular economy may require an increase in consumer involvement, for instance through the performance of activities such as product return or resale or the subscription to PSSs [3] that they were not previously involved in. But much of the circular economy literature to date fails to address the challenge of translating these new concepts into concrete action through engaging consumers in behavioral change.

Some studies have provided frameworks that attempt to lay out principles and practice for circular economy design and business models. Den Hollander et al. and Bakker et al. [14,15] reference Stahel's principle of inertia and product integrity, asserting that, in the case of products, 'prolonging and extending useful lifetime by preserving embedded economic value is the most effective way to preserve resources' [14]. Whilst acknowledging that the product's lifetime in use is often determined by its perceived value according to the consumer, they point to the necessity for business models and designs that allow for this preservation of economic value, and advocate a model of design for product integrity through long use (resisting obsolescence), extended use (postponing obsolescence) and recovery (reversing obsolescence) [14]. Bocken et al. [16] also provide a model for circular product design and business strategies that facilitate slowing or closing the loop through, for instance, extending product lifetimes, designing for disassembly, providing an access or performance model, or encouraging sufficiency.

Drawing on these studies, and work by the Ellen MacArthur Foundation [2], this paper selects four principles of a circular economy and uses four representative businesses to explore their marketing communications with customers via their websites:

a. Longevity (i.e., encouraging long use, or resisting obsolescence)

   Example business: Tom Cridland (TC)

b. Leasing (i.e., PSS or servitization, slowing the loop by providing access over ownership)

   Example business: Girl Meets Dress (GMD)

c. Reuse (i.e., extended use, or postponing obsolescence through extending product life)

   Example business: Patagonia Worn Wear (WW)

d. Recycling (i.e., recovery, or reversing obsolescence through extending material life)

   Example business: Elvis & Kresse (E & K)

When it comes to marketing circular or sustainable consumption, it is recognized that companies have a role to play, and that increasingly this is about changing consumer behavior at both purchase and use phases [17]. Close communications between a company and its user or consumer group are key to the success of innovative business models such as PSS [18] and possibly other circular economy models, and marketing communications can be particularly effective in the introductory phases of a product or service cycle [19].

2.2. Marketing

Marketing may be seen as both a reflection of and influence on human culture, through the active creation of markets by companies using the traditional marketing mix of price, place, promotion and product (the '4Ps') [20,21] to stimulate attention, interest, desire and action. Marketing is the communication of one to many (as distinct from sales, which is one to one), and a market-oriented firm is one which prioritizes market intelligence and a strong customer focus [22]. Brands and advertising are central to the field of marketing, and brands represent powerful conduits of meaning [23] that contribute to customers' concepts of self. Perception, reputation and image are the essence of a brand, and it has been shown that advertising that taps into emotive concerns is more successful than purely factual forms—especially where the brand's image is of especial importance to the consumer (e.g., with clothing) [24]. Advertising is designed to both inform and persuade, and successful advertising can manipulate people's desires and intentions in such a way as to create needs for goods with which they were previously unfamiliar or not interested in purchasing [24].

With the growth of the world wide web, a company's marketing capacity and identity as perceived by its consumers is largely cultivated via its website, with factors such as visual appeal, ease of use, interactivity, trust and playfulness becoming essential in converting repeat customers online [25]. The challenges of competitor differentiation and lack of personal contact or influence over customer

location are more difficult in online scenarios, and yet the internet has been defined as a powerful tool for retailers: search engines select required information, websites can be frequently updated and accessed from a number of devices in many locations and timezones, and Web 2.0 has enabled new levels of user interaction and collaboration [26].

2.2.1. Green Marketing

The theory and practice of green marketing has developed over more than 30 years, and the field provides valuable insight into the development of new markets for products and services with lower environmental impacts or higher sustainability credentials [27,28], in particular through companies' communication with consumers. As with conventional marketing, green marketing strategies make use of segmentation, targeting, positioning and differentiation as well as the 4Ps marketing mix, with most consumers reporting positive attitudes to green advertising and promotion [27,28]. In practical terms, green marketing has evolved from reassuring customers with end-of-pipe solutions that mitigate pollution and address moral issues, to creating new markets and competitive advantage for business through desirable green products and services; more recently it has attempted the 'normalization' and integration of sustainability [29,30] by introducing longer term perspectives and addressing business models such as localization or product service systems [28]—which could also be seen as facilitating a circular economy [3].

Green marketing literature has applied theories from several other disciplines [27] to examine the success of different approaches to green consumption—for instance showing how framing messages differently affects consumers' purchase attitudes and intentions [31,32], and that people's perception of value is strongly dictated by how that value is communicated [33,34]. There is a tendency for green advertising to make rational appeals or expect that listing functional advantages will be enough to persuade consumers to buy the product, whereas research shows that emotional appeals, or those using both functional and emotional elements, actually carry more weight [33,35]. Moreover studies suggest that green marketers need to emphasize both tangible and intangible value (e.g., reduced costs as well as moral satisfaction), and align environmental benefits with consumer self-interest in order to increase sales and consumption [32,33]—as although those with higher environmental involvement can be influenced by environmental information, both those with higher and lower environmental concerns are likely to be affected by how the purchase will make them feel [33,35].

However, although green marketing supplies some useful frameworks for managers wishing to cultivate green customers, it has received criticism for taking an overly cognitive and behavioral approach that focuses on the psychology of the individual whilst tending to ignore social and cultural contexts [27,28]. Research studies can be contradictory or even inconclusive [33–35]. The rebound effect and values-action (or attitude-behavior) gap are well known phenomena that can scupper the benefits of efficiency savings through green consumption (rebound effect [28]), and show that consumers do not always follow up their green attitudes and intentions with sustainable consumption behaviors (values-action gap [33–35]). Environmental labelling has likewise not brought the hoped-for upturn in green consumption, and such tools have even been condemned for the plethora of programs, costs, and lack of consumer focus [20,36–38]. Greenwashing, which involves positive environmental communications but poor actual performance, is another accusation that has been levelled at the field of green marketing [28]. In general people are positive about supporting environmental issues but unwilling to change their lifestyles, and 'green' products may also be viewed as unpleasant, inconvenient or weird [39]—possibly because industry has previously focused on creating green products, rather than products that consumers actually want. More radical perspectives further denounce the very practice of marketing as an 'active creation of wants' and inimitable to sustainable development [20], as it ignores the wider question of consumption reduction [30].

2.2.2. Social Marketing

The concept of social marketing was born in the 1970s and has developed as an approach that utilizes conventions of traditional marketing and behavioral science, such as the 4Ps, norms, prompts and social diffusion, to bring about behavioral change for the benefit of a community or society (e.g., in the field of healthcare—to encourage the cessation of smoking) [30,40–43]. Unlike commercial marketers, which compete with other brands selling similar goods and services to consumers for purposes of financial gain, social marketers usually work on behalf of governments or non-profit organizations, competing with peoples' current behaviors in order to sell them more beneficial behaviors for purposes of societal (and sometimes also commercial) gain and removing the barriers whilst simultaneously stimulating the motivators for action [42,44].

In terms of behavior change for sustainability, it has been argued that people rarely shift their conduct as a result of information provision, and that many green marketing approaches take an overly rational approach—neglecting consumers' cultural and symbolic context and emotional responses [30,41]. Whereas green marketing tends to ignore the non-purchase elements of consumption (e.g., use and disposal) and focuses largely on products, social marketing takes a more customer-oriented or user focused perspective towards changing and maintaining new behaviors such as recycling [30], building relationships, and using emotion and humor as tools of communication.

However, accusations of social engineering have sometimes been targeted at the social marketing field [28], and its usual focus on curbing unhelpful behaviors (e.g., reducing smoking in the healthcare sector) has also proved difficult to reconcile with principles of sustainable consumption, which tend to implicitly accept the norms of growth and unlimited consumer choice [28]. But Peattie and Peattie argue that social marketing does in fact provide a suitable model for so-called 'anti-consumption', and in doing so suggest several modifications to the marketing mix which could also fit with PSS or a circular economy [30]. For instance, shifting from products to propositions, from place to accessibility (e.g., access over ownership), from price to costs of involvement (e.g., time and effort), and from promotion to social communication (e.g., relationship building instead of one-way promotion).

2.3. Design for Sustainable Behaviour

In recent years the growth of user-centered and service design has seen the field of design become more fundamentally concerned with a customer or user-centric approach. Design for Sustainability and in particular Design for Sustainable Behavior (DfSB) have emerged as areas of design research that explore how to influence the environmental impact of consumers' activities, mostly during the use rather than purchase phase [45]. As with green marketing, DfSB focuses on individual behavior change and incorporates psychological, sociological and economic perspectives, drawing on the theory of interpersonal behavior, comprehensive action determination model (CADM) [46], theory of planned behavior [47] and PSS literature [10], and also uses Akrich and Jelsma's work to describe how behaviors are 'scripted' into the design of our objects and surroundings [48]. According to such psychological approaches, new behaviors may be triggered as a result of extrinsic or intrinsic, hedonic or eudaimonic motivations and deliberate or automated decision making [49], and changes to consumer behavior will have the greatest impact when they address several motivating factors simultaneously [17,50].

However, although Design for Sustainability more broadly has addressed issues such as the repairability, disassembly and remanufacturability of products, DfSB literature has as yet paid scant attention to the behavioral challenges involved in transitioning consumers or users to a circular economy—focusing instead on efficiency strategies that encourage using 'less' [45]. Design is fundamentally concerned with creating change and making innovation 'acceptable to users' through interfaces and experiences [51], and is a means of configuring communicative resources as well as social interaction [52]. As has already been alluded to, conventional marketing techniques encourage consumers merely to switch brands, whereas a circular economy will likely require consumers to adopt new behaviors such as product return, rental, or reuse. DfSB, like social marketing, deals with behavioral change for sustainability, but unlike the more binary frameworks in conventional and

green marketing (e.g., functional/emotional, self/other, high/low involvement etc.) several DfSB frameworks provide a more comprehensive set of dimensions. There are several tools and strategies in the DfSB literature that might lend themselves to an analysis of current approaches that businesses are taking in order to influence consumers in the adoption of certain circular economy behaviors—for instance through the design of their marketing and communications.

Two of these frameworks will be utilized in this paper, to assess their relevance in exploring and analyzing the marketing communications strategies used by such businesses on their customer-facing websites.

One is Daae and Boks's 9 Dimensions of Behavior Change [53] (see Table 1), which describes different types of behavioral influencers. A key concept here are the strategies of control in any given activity, from 'user in control' to 'product/system in control' [53]. This continuum moves from informing, through persuading, to determining user actions. In terms of online communications it is suggested that some dimensions may be more relevant than others, for instance it may be difficult to exert absolute control over a user through a website alone, whereas it may be easier to convey meaning or empathy.

Table 1. Taken from The 9 Dimensions of Behavior Change [53].

Control	To what extent is the user or the product in control of the behavior?
Obtrusiveness	How much attention does the design demand from the user? On a scale from obtrusive to unobtrusive.
Encouragement	To what extent does the design encourage desired behavior or discourage undesired behavior?
Meaning	How does the design motivate the desired behavior, on a scale from emotional to rational)
Direction	Is the desired behavior in line with, or opposing the wishes of the user?
Empathy	Is the design focusing on the user or on others/what others think?
Importance	How important or unimportant does the user consider the behavior/consequence?
Timing	Does the user encounter the design before, during or after the behavior?
Exposure	How frequently or rarely does the user encounter the design?

The other is Dan Lockton's Design with Intent Toolkit [54], which again shows how design may influence behavior and provides 101 patterns in eight lenses. It is not focused on the circular economy or sustainability, but it provides a useful mapping tool for understanding challenges and possible solutions related to behavior change for sustainability. After an initial scan of the selected websites (see Method) a selection of patterns from seven lenses were identified by the authors as being most relevant to online marketing communications. For example, the architectural lens uses techniques to influence user behavior in architectural or urban planning scenarios, and the patterns here were less suited to 2-dimensional communications, so only one pattern (simplicity) was chosen. Conversely, the cognitive lens draws on heuristics, biases, and techniques from cognitive psychology to understand how users interact and make decisions and how designers can use this knowledge to influence their decisions, and most of the patterns for this lens were deemed relevant for the communications context. Likewise, patterns from the perceptual lens were deemed more relevant, as they use ideas from semantics, semiotics and psychology to discover how users perceive visual patterns and meanings, making them appropriate for analyzing online, visual design, and communications. The chosen patterns and lenses were adjusted during the analysis of the case study websites, with some initially chosen being dropped and others added to give a final total of 25 (see Table 2).

Table 2. The 25 Design with Intent patterns that were identified as being relevant to digital marketing and communications.

DwI Lens	DwI Pattern
Perceptual	Color associations
Perceptual	Metaphors
Perceptual	Mood
Perceptual	Prominence
Perceptual	Transparency
Perceptual	Similarity
Machiavellian	Anchoring
Machiavellian	First one free
Machiavellian	Worry resolution
Ludic	Rewards
Ludic	Storytelling
Ludic	Playfulness
Cognitive	Emotional engagement
Cognitive	Framing
Cognitive	Expert choice
Cognitive	Provoke empathy
Cognitive	Rephrasing and renaming
Cognitive	Scarcity
Cognitive	Social proof
Cognitive	Personality
Cognitive	Reciprocation
Cognitive	Assuaging guilt
Interaction	Tailoring
Errorproofing	Choice editing
Architectural	Simplicity

2.4. Consumer Factors for a Circular Economy

Academic literature on the circular economy is still nascent, particularly when it comes to the consumer perspective. There are, however, a number of papers that deal with consumer reactions to activities that form part of a circular economy, such as reuse, remanufacturing, and PSS. In order to focus the current study on specific concerns that customers have in participating in these activities, an initial literature review of these papers was undertaken. Using 'PSS', 'reuse', 'remanufacture' and 'consumer behavior' as search terms, and a snowballing technique to find further studies, a series of papers was gathered that described and empirically tested motivating or barrier factors for consumer acceptance of these products and services. The most prevalent factors were found to recur throughout the literature, and these were identified and grouped into ten similar themes or factors (see Table 3). The grouping is based on the contextual understanding of how different authors approach the various themes. Different authors use different terminology to describe similar factors in different papers, and some might focus on motivators rather than barriers (or vice versa). For instance, Abbey et al. and Bardhi and Eckhardt refer to the barrier of 'disgust' (Bardhi and Eckhardt also speak of 'contagion') that people feel in using remanufactured or access-based products that have previously been touched by others, whilst Baxter et al. use the term 'contamination' to describe a similar attribute. Boks et al. call this same issue of previous usage a concern for 'newness', whilst for van Weelden et al. and Holmström et al. one of the problems of refurbishment is 'lack of the thrill of newness', and Mugge et al. echo this finding. Contamination and disgust are feelings evoked by a lack of newness, and thus all represent different facets of the same factor. Some authors deploy 'convenience' as a more general term, where others are more specific by explicitly pointing out availability as a crucial factor. Convenience and availability may be considered as an element of quality and performance, but we chose to distinguish the latter as a separate consumer factor because it bears more relation to the product or service in use, whilst convenience and availability denote ease in gaining initial

access to the product or service. These ten factors formed a basis for investigations into four case study businesses' online marketing communications with their customers.

Table 3. A summary of consumer factors for a circular economy, taken from literature on product service systems (PSS), remanufacturing and reuse (awareness was also found to be a factor, but this is not included as customers will already be aware of the retailer by the time they are looking at their website).

Consumer Factor	Reference
Contamination/disgust/newness	(Abbey et al., 2015) (Bardhi and Eckhardt, 2012) (Boks et al., 2004) (van Weelden et al., 2016) (Holmström et al., 2017) (Mugge et al., 2017) (Catulli et al., 2013) (Baxter et al., 2017) (Camacho-Otero, 2017) [54–63]
Convenience/availability	(Lindström et al., 2015) (Weelden, Mugge and Bakker, 2016) (Cox et al., 2013) (Bardhi and Eckhardt, 2012) (Boks et al., 2004) (Camacho-Otero, 2017) [56–58,63–65]
Ownership	(Lindström et al., 2015) (Tukker, 2013) (Antikainen et al., 2015) (Moore and Folkerson, 2015) (Camach-Otero, 2017) [3,8,63–66]
Cost/financial incentive/tangible value	(Lindström et al., 2015) (Weelden, Mugge and Bakker, 2016) (Antikainen et al., 2015) (Abbey et al., 2015) (Mugge, Jockin and Bocken, 2017) (Cox et al., 2013) (Holmström, Böhlin and Biedenbach, 2017) (Guiot and Roux, 2010) (Camacho-Otero, 2017) [8,55,57–60,63–67]
Environmental impact	(Lindström et al., 2015) (Antikainen et al., 2015) (Mugge, Jockin and Bocken, 2017) (Holmström, Böhlin and Biedenbach, 2017) (Guiot and Roux, 2010) [8,59,60,63,64,67]
Brand image/design/intangible value	(Tukker, 2004) (Tukker, 2013) (Weelden, Mugge and Bakker, 2016) (Mugge, Jockin and Bocken, 2017) (Cox et al., 2013) (Antikainen et al., 2015) (Guiot and Roux, 2010) [3,8,58,60,65,67,68]
Quality/performance	(Lindström et al., 2015) (Weelden, Mugge and Bakker, 2016) (Abbey et al., 2015) (Antikainen et al., 2015) (Holmström, Böhlin and Biedenbach, 2017) (Moore and Folkerson, 2015) (Mugge, Jockin and Bocken, 2017) (Camacho-Otero, 2017) [8,55,57–60,62–64,66]
Customer service/supportive relationships	(Lindström et al., 2015) (Tukker, 2013) (Weelden, Mugge and Bakker, 2016) (Bardhi and Eckhardt, 2012) (Antikainen et al., 2015) [3,8,55,56,58,63,64]
Warranty	(Weelden, Mugge and Bakker, 2016) (Cox et al., 2013) (Holmström, Böhlin and Biedenbach, 2017) [58,59,65]
Peer testimonials/reviews	(Weelden, Mugge and Bakker, 2016) (Antikainen et al., 2015) (Holmström, Böhlin and Biedenbach, 2017) [8,58,59]

3. Materials and Methods

This paper represents an initial exploration of marketing practice in a circular economy, in order to contribute to a growing body of work in this area. It uses existing frameworks from design and explores how they might be used to address factors that have been identified as affecting consumer behavior from the PSS, reuse, and circular economy literature. Which design strategies can be used to address which consumer factors, and can we find examples or case studies of this in practice? The analysis provides a basis for exploring the communication strategies of other circular businesses and identifying future opportunities. Circular economy approaches were identified (longevity, leasing, reuse and recycling, see Section 2.1), and companies that promoted each of these four were chosen using purposeful sampling for a multiple case study [7,69]. To improve generalizability and opportunities for cross-case comparison and analysis [70] the businesses were all selected from the fashion retail sector. Case studies usually include varied and extensive data sources [71], and the studies initially incorporated the businesses' social media and offline marketing as well as websites, but for purposes of accessibility and to facilitate more detailed initial exploration it was decided to limit data collection to the websites alone.

Using subjective interpretive analysis in line with the exploratory nature of the paper, the Dimensions for Behavioral Change [53] and 25 of the Design with Intent patterns [54] were identified as relevant for interpreting online communications (see Section 2.3). The most relevant dimensions and patterns were identified and used as emergent theory [72] to interpret and analyze the findings.

Data collection involved gathering field notes [73] for each company and conducting within-case analysis [69] about the website's general appearance and communications. The intent of the case studies was instrumental [69] and focused on understanding deductively how the communications

strategies addressed each of the ten consumer factors identified in the literature through their digital communications discourses [74].

Rhetorical analysis was used to subjectively evaluate the different communication approaches and select examples from the four companies that accorded with the 10 consumer factors (see Table 3 and tables in Appendix A). Rhetorical analysis provides a critical, interpretive reading, may take into consideration pictures, videos or other media as well as written text and tries to understand how a message is crafted in order to gain a particular response [75]. The five 'canons' of rhetoric emphasize the importance of strategy, arrangement, style, resources, and delivery [75].

The tables in the Appendix A summarize for each company examples of how their digital marketing addresses the 10 consumer factors, and explains how these were qualitatively assessed and categorized according to the design dimensions or DwI patterns.

Communication design strategies were then extrapolated for each of the consumer factors (see Table 4), and the insights and applications discussed.

Table 4. Suggestion of which communication strategies can address which consumer concerns in a circular economy.

Consumer Factor	Communication Design Strategies
Contamination/disgust/newness	Importance, playfulness, rephrasing and renaming, emotional engagement, empathy, personality, framing, choice editing
Convenience/availability	Encouragement, direction, simplicity, assuaging guilt, worry resolution
Ownership	Meaning, anchoring
Cost/financial incentive/tangible value	Encouragement, rewards, importance, first one free, scarcity, framing
Environmental impact	Transparency, simplicity, empathy, obtrusiveness, meaning, framing, emotional engagement, importance, assuaging guilt, direction
Brand image/design/intangible value	Meaning, storytelling, empathy, mood, color associations, importance, emotional engagement, scarcity, prominence, obtrusiveness, expert choice, social proof.
Quality/performance	provoke empathy, meaning, storytelling, personality, importance, scarcity, expert choice, direction, emotional engagement, worry resolution
Customer service/supportive relationships	Encouragement, tailoring, transparency, emotional engagement, metaphors, provoke empathy, assuage guilt, reciprocation, importance
Warranty	reciprocation, assuaging guilt, worry resolution, obtrusiveness, metaphor, importance
Peer testimonials/reviews	social proof, storytelling, provoke empathy, expert choice, importance, worry resolution

4. Results

The following analysis is based on the tables in Appendix A, and develops this by cross-comparing and synthesizing the company examples according to the design frameworks, in order of the 10 consumer factors.

4.1. *Contamination/Disgust/Newness*

Tom Cridland (TC) (Figure 1) does not address this since all of the clothes are obviously 'new'. For Girl Meets Dress (GMD) (Figure 2), dry cleaning is mentioned but otherwise the issue of newness or contamination (others having worn the dresses first) is notable by its absence, perhaps because GMD wants to reduce its importance or choice edit our responses. Both Worn Wear (WW) (Figure 3) and Elvis & Kresse (E & K) (Figure 4) tackle this concern by evoking meaning and eliciting our empathy. They use playful phrases such as 'Better than New' to rephrase and rename or frame old garments, encouraging customers to rethink their assumptions about used clothes and increasing their importance. Both companies anthropomorphize their products and give them personality with expressions like 'scars tell the story', 'rescued' or 'heroic' materials, 'retired' or 'decommissioned' fire hose that bring a

new perspective to second hand items, engage our emotions, and lead us to see irregular or unwanted products as one-off, exclusive pieces.

4.2. Convenience/Availability

All four retailers use the dimensions of encouragement and direction to address consumer concerns of convenience and availability. Promises such as 'free shipping', 'returns and exchanges' or 'next day delivery' may be familiar enticements, but 'dry cleaning is on us' or 'trade in at a store near you' are more unique to circular economy business models. As a model of PSS, which is more dependent on service quality, GMD in particular communicate the convenience of the service in many different ways; e.g., 'rent a different dress for all your events', '4000+ new season dresses', 'get a refund for anything you don't wear', 'risk free', '4 simple steps to rent the dress of your dreams'. Here the design patterns of simplicity, assuaging guilt and worry resolution (also evident in E & K's 'you don't need to worry') reassure consumers and motivate them to try the service.

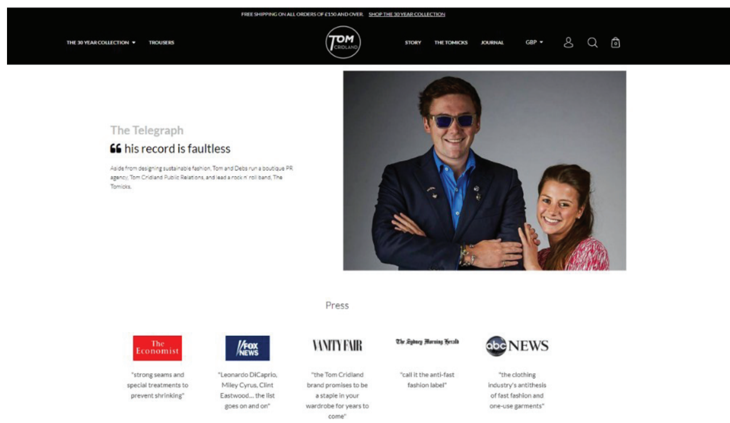

Figure 1. Tom Cridland website (accessed on 27 November 2017).

4.3. Ownership

GMD also encourages customers to try their clothing PSS by tapping into familiar meanings of ownership and anchoring the rental service as almost the same as the 'normal' system they are used to: they can try lots of options and anything unworn will be refunded, 'just like a normal shop'. The concern of ownership is not applicable to the other three businesses however, as they retain the traditional ownership model.

4.4. Cost/Financial Incentive/Value

As with convenience, the dimension of encouragement and the pattern of rewards are especially relevant to the consumer factor of cost. The longevity of TC's clothing 'will save you money in cost per wear', with Patagonia Worn Wear 'you get paid' and can 'see how much your (old) clothes are worth', and with GMD the word 'free' is used frequently, often with bright pink letters for emphasis; e.g., 'free stylist advice', 'first dress free', 'get this dress free'. GMD also uses first one free to hook customers. WW and E & K both employ the dimension of importance to highlight the value in 'waste' items, E & K through the high cost of products and 'limited edition' language (also indicating scarcity and framing), and WW by offering customers money in return for their old items.

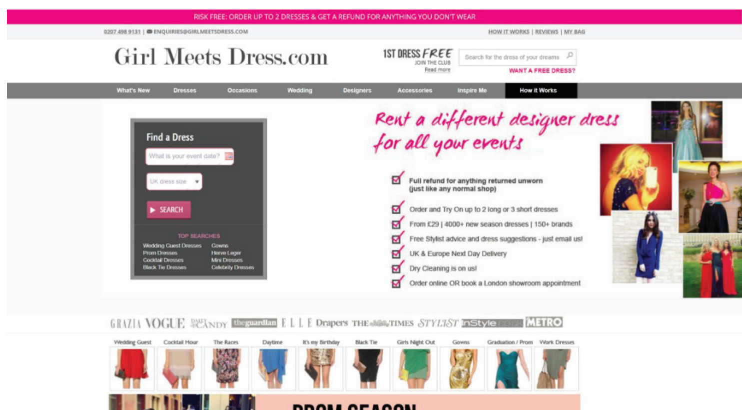

Figure 2. Girl Meets Dress website (accessed on 27 November 2017).

4.5. Environmental Impact

GMD is the only retailer that has no indication or mention of environmental impacts. TC calls the company 'the world's number 1 sustainable fashion brand' and a 'campaign against planned obsolescence', both obtrusive claims that nevertheless use meaning to get our attention, framing the brand as an environmental crusade. TC, WW and E & K all use emotional engagement to involve customers in the ethics of their brands: 'keep the Worn Wear cycle in motion and avoid the landfills' tries to enhance the importance of consumers' behavior in contributing to the avoidance of landfill, to assuage guilt and to use direction to emphasize that this is the way the customer was already going. WW frames sustainability as responsibility and customer care, and uses reciprocation to encourage responsible consumer behavior: 'one of the most responsible things we can do as a company is to make high-quality stuff that lasts for years and can be repaired, so you don't have to buy more of it'. E & K are transparent and simple in communicating the recycled sources of their materials; e.g., coffee sacks, printing blankets, parachute silk—and use emotive language to enlist our empathy: 'seemingly useless waste', 'rescue', 'lovingly hand weave'.

4.6. Brand Image/Design/Intangible Value

Meaning and storytelling are crucial to the image and values of all four brands. WW's 'retro' imagery, mood and color associations evoke the 'make do and mend' values of a previous age and the company's emphasis on repair and reuse. Their partnership with iFixit also reinforces this values-based emphasis on repair. E & K's 'Story' ties in the brand with the emotive subject of firefighters and rescue, engages our emotions and provokes empathy and highlights its purpose beyond profitmaking as the ultimate rescuer by saving materials from waste and donating profits to firefighters' charities. Earthy colors (mood, color associations) evoke the fire and natural materials that are key to the brand, accreditations such as B-corp member and Brand of Tomorrow communicate its purpose-driven status, and values such as 'sustainable luxury', 'ethical travel' and the cycle of 'rescue, transform, donate' increase the importance of merely keeping waste materials out of landfill. GMD uses bright pink color associations and images of women having fun at parties to suggest a mood of excitement and engage our emotions, hoping to engage the customer in a direction they are already interested in, whilst 'Join the Club' suggests an element of exclusivity or scarcity. TC meanwhile seems to use bold statements and prominent contrasting colors obtrusively to gain our attention. Media endorsements and PR are also very important for this brand: Tom Cridland's personality, celebrity friends, rock band, PR company and upper-class 'From London to Hollywood' English lifestyle portrayed through social media provide expert choice and social proof.

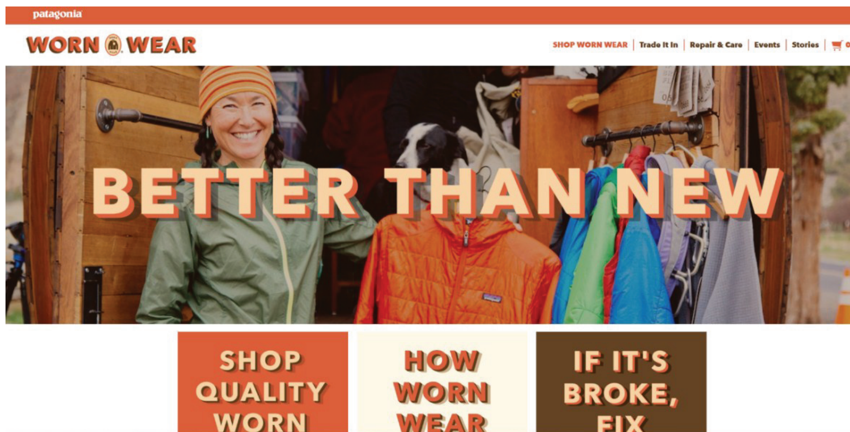

Figure 3. Patagonia Worn Wear website (accessed 27 November 2017).

4.7. Quality/Performance

Meaning is also important for all four retailers when it comes to the quality and performance of the product, for instance E & K's emphasis on 'timeless design', 'best of British luxury' or 'lovingly hand weave'. Words such as 'cherish', 'beautiful', 'individual' also increase the importance of waste 'from the cutting room floor', whilst anthropomorphic phrases such as 'previously deployed in active duty for 30 years' provoke empathy through storytelling and personality. The fact that GMD supplies designer dresses increases their importance and scarcity in the eyes of the consumer (as does E & K's offer of limited editions), whilst celebrity endorsements or a 'made in Portugal and Italy' tag guarantee quality and desirability through expert choice for both GMD and TC. TC uses words such as 'durable', 'luxury', a 'staple in your wardrobe for years to come' to provide the consumer with a product in the direction of their interest, and emotional engagement with the promise that it is the 'antithesis of fast fashion'. WW similarly employs direction and worry resolution to reassure the consumer of their 'high quality stuff that lasts for years and can be repaired, so you don't have to buy more of it'.

4.8. Customer Service/Supportive Relationships

The dimension of encouragement seems to be important for establishing good customer service credentials amongst all of the retailers, for instance with GMD's live chat support and videos or many search terms and E & K's mailing list, social media or direct mail options. Both of these companies make use of tailoring with personalization or personal shopper and choice of length, rental period and size to make the process easy, and E & K employs transparency by communicating the business's material sources, processes and purpose in an authentic manner. Emotional engagement is also important for most of the companies for building supportive customer relationships, such as GMD's catalogue of exciting social occasions for which they can provide dress suggestions or WW's 'repair and care' detailed product guides that give ongoing customer service beyond purchase. WW's 'designed to endure' video uses metaphors such as 'fabric doctors', 'gurus of everlasting thread' to provoke empathy, and phrases like 'we take care of each piece by hand' assuage guilt by emphasizing the company's focus on care, repair and longevity of items. In a similar way TC uses reciprocation to make customers feel they have been done a favor: 'if anything happens to it over the next 30 years, send it to us and we will mend it and send it back to you. That means the cost of repair and return postage is on us'—with the 30-year time scale also increasing importance.

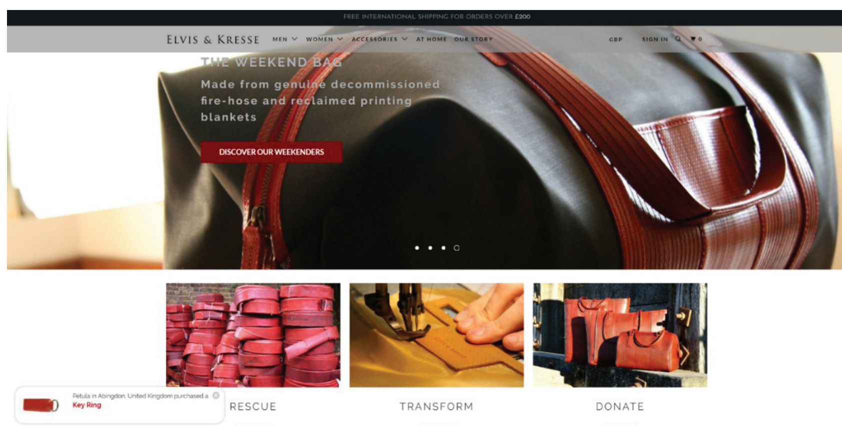

Figure 4. Elvis & Kresse website (accessed on 27 November 2017).

4.9. Warranty

TC provides customers with 'our 30 year guarantee: 3 decades of free mending', a strategy that increases the importance of the clothing and potentially the effort the user is willing to put into maintaining it, and could also assuage guilt about the purchase or introduce reciprocation. GMD and WW also assuage guilt and provide worry resolution with their obtrusive 'no risk policy' (get refunded for unused styles) and 'Ironclad Guarantee' (replacement or refund, even for worn items) respectively. 'Ironclad' as a metaphor evokes the company's trustworthiness and may increase customer confidence. E & K also provides a 12-month guarantee for all products, though this is rather hidden on their 'Terms' page and does not seem to be part of a marketing strategy, as with the other retailers.

4.10. Peer Testimonials/Reviews

For peer testimonials, the most important design pattern is social proof. Pop-up banners on E & K's site tell customers every time someone else buys a product; e.g., 'Adam from Cardiff purchased a tote bag'—whilst WW's 'The Stories We Wear' page is full of customers' stories of their experiences and memories with their Patagonia gear, emphasizing its quality and longevity and using storytelling to provoke empathy. Media appearances build credibility for E & K, TC and GMD, and celebrity endorsements are particularly important to reinforce the expert choice and importance of TC and GMD's brands ('TC have made clothing for the likes of Leonardo DiCaprio, Ben Stiller, Rod Stewart, Hugh Grant...' etc.). The customer reviews and photos on GMD also provide worry resolution for other customers and reassure them that the fit, look, hassle or price factors will work in their favor.

5. Discussion

On the whole, extrinsic factors such as cost and warranties seem to be addressed by hedonic dimensions such as rewards, encouragement, assuaging guilt, obtrusiveness and importance, whereas more intangible, intrinsic factors like brand image, environmental impact, quality and contamination are served by eudaimonic dimensions like meaning, empathy and emotional engagement (see Figure 5). All four retailers employ a combination of these.

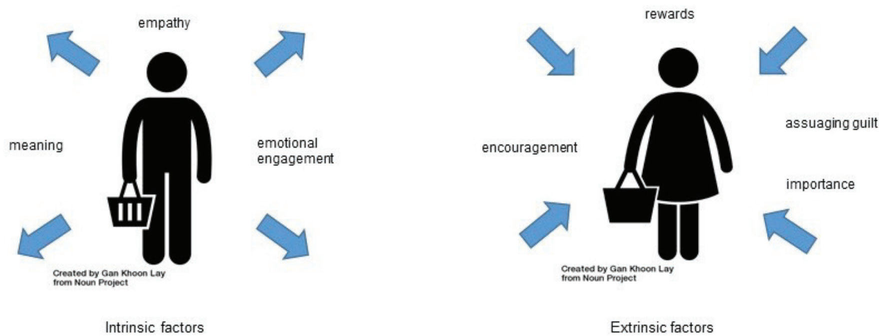

Figure 5. Illustration of intrinsic factors addressed by eudaimonic dimensions, and extrinsic factors addressed by hedonic dimensions.

TC, E & K, and WW all have a sense of mission or purpose to their brands and use language and imagery to surprise us or change our perspective, for instance on the length of time that clothes should last and the desirability of 'old' products or materials, helping to differentiate themselves as circular businesses from more familiar retailers. Tom Cridland's own personality as a young British entrepreneur with famous friends, a rock band and a jet-set lifestyle is crucial to the brand, but the media are just as fascinated by his audacious 30-year guarantee and the irony of the 'anti-fashion' fashion company. WW and E & K try to change our assumptions about used clothing by employing storytelling, metaphor, personalization and playfulness: WW's 'stories we wear' celebrate the wearing or 'adventure' of use for instance, whilst E & K's 'rescued', 'raw', 'cherished' materials and emphasis on business purpose try to create empathy and convey authenticity, thus helping to transform our preconceptions of the value of waste. GMD as the only PSS model is rather anomalous, and rather than trying to stand out from the crowd, it reassures customers that it is 'just like a normal shop', using anchoring and worry resolution to convince us that products are 'in new condition' and 'risk free'. The communication of customer service, cost and convenience are particularly germane to GMD, which also employs tailoring (for a specific event or body type) to persuade consumers to try out this novel service.

This analysis tells us that some strategies from these existing design frameworks may be more relevant than others in assessing communication and marketing in a circular economy context. Patterns from most of the DWI lenses were useful in this study for instance, with more coming from the Cognitive Lens than any other, but some (e.g., Architectural, as mentioned before) being only marginally relevant. The dimensions of control, timing and exposure were discovered to be less relevant than the others for online communications, as it is difficult for companies to exert actual behavioral control using words and images, to affect the timing and context in which a customer views the site, or to influence the number of times people are exposed to their website. Targeted advertising of course is now facilitating the latter, but falls outside the scope of this study. Going through each consumer factor systematically to examine how a company is addressing these using the design dimensions or patterns shows that all four companies were addressing most of the factors, but there were striking differences in the way that they accomplished this. Based on the analysis of the four companies in this study, Table 4 suggests which communication design strategies may be most apt for addressing each consumer concern or 'factor' identified in the literature. Of course, the analysis is case-based and subjective and therefore difficult to generalize, and using different design or behavioral models would have given different results. But taking a multi-case approach and verifying the findings between the authors has enabled them to be as reliable as possible, whilst using the consumer factors from literature has focused the analysis on communications that address motivators or barriers for a circular economy.

DfSB approaches have been criticized by practice theorists and those with a more cultural or socio-material approach as too simplistic or encouraging an overly individualized approach that risks rebound effects and does not take enough account of the attitude-behavior gap [76]. However, there are no silver bullets and it would appear that borrowing from DfSB frameworks can provide a useful and more comprehensive scope for analyzing some marketing strategies than has traditionally been offered by the rather binary options of 'self-other' green marketing. Environmentally motivated, 'deep green' consumers represent only a fragment of the total and therefore appealing to consumers' emotions and self-interest, as highlighted by the green marketing literature, represents an important and perhaps vital way to engage those consumers who would not be won over by rational or environmental arguments. If consumers are to be engaged not just with new brands and alternative products but with the new behaviors and ways of consuming suggested by a circular economy, then it appears that new types of communication and marketing strategies may also be necessary, and that the field of design may be able to suggest tools and frameworks that provide useful insights.

The paper indicates how these design-based methods of assessment may be useful to businesses in taking a more strategic approach when designing their marketing communications for a circular economy. However, it is impossible to scrutinize properly the success of communication strategies for a circular economy without also examining consumer interpretations, and next steps for the research should also include a consumer perspective on these communications.

6. Conclusions

This study has identified ten groups of factors from circular economy and sustainability literature that may affect consumers' acceptance of circular economy products and services, and identified two models from design literature that propose strategies for influencing consumer behavior. It has used these factors and strategies as deductive frameworks in mapping and assessing the web communications of four real-life companies with 'circular' offerings, and has provided insights into the very different approaches used by each. Design tools such as the Dimensions of Behavior Change or Design with Intent can be useful for analyzing and guiding business communications in the context of a circular economy, by suggesting different strategies that appeal to different aspects of people's motivations or behavior. Some aspects of these frameworks may be more relevant than others, and depending on the characteristics of specific user groups, may be less or more relevant when aiming to persuade consumers to adopt new behaviors and buy into circular products and services. Nevertheless, certain strategies appear to be the most appropriate for addressing specific consumer concerns (see Table 4), and we regard this as a novel contribution to emerging research on how to introduce and communicate circular offers to users in a successful way. An advantage over common marketing and branding approaches is that our recommendations not only focus on how to communicate ready designed product and services, but also provide insight for the very design process thereof, taking behavioral aspects into account and providing a more nuanced and detailed palette through the application of design frameworks than have hitherto been available to green marketing or social marketing. We recommend future research to apply and test these in various scenarios to provide greater insight and new opportunities for companies wishing to do so. Such dedicated case studies will also provide insight into the profitability and market feasibility of such strategies, both on a product and company level. This will enable companies to gain further insights into potential trade-offs between sustainability criteria, market share, profitability, and company image.

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Appendix A Categorization of Examples from the Websites

Table A1. Summary of examples from Tom Cridland website. Which consumer factor does each address, and which design dimension or DwI pattern does it use to affect this?

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Awareness			
Contamination/Disgust/Newness	n/a		
Convenience/availability	Free global shipping over 150 pounds Payment in 6 currencies Returns &exchanges	Encouragement Empathy	
Ownership	n/a		
Cost/financial incentive/value	'..will save you money in cost per wear'	Encouragement	Rewards Assuaging guilt
Environmental impact	'A campaign against planned obsolescence' gives the brand purpose and values	Meaning Empathy	Framing Storytelling Emotional engagement
Brand recognition/image/design/intangible value	'The world's number 1 sustainable fashion brand' is a bold claim Likewise the 30 year t-shirt/sweatshirt/jacket. These bold statements, and the striking black and white logo with contrasting colorful clothing, create a strong brand. Media endorsements and PR are also very important for this brand 'From London to Hollywood': Tom's personality, celebrity friends, rock band, PR company and upper-class English lifestyle portrayed through social media are integral to the brand	Obtrusiveness Importance Meaning	Mood Prominence Expert choice Storytelling

Table A1. *Cont.*

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Quality/performance	'Durable, luxury clothing at an affordable price point' 'Made in Portugal and Italy'—recognized as centers of fine quality fabrics and manufacturing The 'antithesis of fast fashion' 'A staple in your wardrobe for years to come'	Meaning Direction	Expert choice Storytelling Emotional engagement
Customer service/communication/supportive relationships	' . . . If anything happens to it over the next 30 years, send it to us and we will mend it and send it back to you. That means the cost of repair and return postage is on us.'	Meaning Direction	Emotional engagement Reciprocation
Warranty	'Our 30 year guarantee': 3 decades of free mending	Encouragement Obtrusiveness	Assuaging guilt Reciprocation
Peer testimonials/reviews	Quotes from global media (The Journal) and celebrity endorsements reinforce the credibility of the brand ('TC have made clothing for the likes of Leonardo DiCaprio, Ben Stiller, Rod Stewart, Hugh Grant, Danny McBride, Frankie Valli, Stephan Merchant, Jeremy Piven, Nigel Olsson, Brandon Flowers, Robbie Williams, Daniel Craig, Clint Eastwood and Kendrick Lamar')	Importance Obtrusiveness Meaning	Expert choice Social proof

Table A2. Summary of examples from Girl Meets Dress website. Which consumer factor does each address, and which design dimension or DwI pattern does it use to affect this?

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Awareness			
Contamination/Disgust/Newness	Dry cleaning is mentioned, but otherwise the issue of contamination (by others having worn the dress first) is conspicuous by its absence		
Convenience/availability	'Dry cleaning is on us' 'Next day delivery' Order and try on up to 3 dresses' '4000+ new season dresses, 150+ brands' 'Rent a different designer dress for all your events' 'Risk free', 'get a refund for anything you don't wear' '4 simple steps to rent the dress of your dreams'	Encouragement Empathy Meaning Direction	Worry resolution Assuaging guilt
Ownership	GMD reassures customers to try this rental system by reassuring them that it is the same as the ownership system they are used to, e.g., they receive a refund for anything unworn 'just like any normal shop', or can try on lots of options, 'just like a normal shop'	Encouragement Empathy	Framing Anchoring
Cost/financial incentive/value	'Free stylist advice', 'First Dress Free', 'Get this dress free'—the word free is used frequently, often combined with bright pink and capital letters for emphasis. 10 pound welcome gift plus money off first order.	Encouragement	First one free Rewards Expert choice
Environmental impact	n/a		

Table A2. *Cont.*

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Brand recognition/image/design/intangible value	Lots of colorful images of women having fun and at parties Bright pink suggests excitement and parties 'Join the Club' suggests an element of exclusivity	Meaning direction	Emotional engagement Mood Color associations Storytelling Scarcity
Quality/performance	These are designer dresses Refund for anything unworn, 'just like any normal shop'	Meaning Importance	Expert choice Scarcity
Customer service/communication/supportive relationships	'Order online or book a showroom appointment' Suggestions of dresses for different scenarios, e.g., The Races, Girls' Night Out, Wedding Guest, live chat support and videos, many different search terms, Personal Shopper, choice of length, size, rental period etc.—all make the process seem easy 'Our priority is that you look and feel amazing'	Encouragement Meaning Empathy	Emotional engagement Social proof Tailoring
Warranty	No risk policy (try a few styles and get refunded for the ones that don't fit)	Encouragement Direction	Assuaging guilt Worry resolution
Peer testimonials/reviews	Media mentions build credibility Celebrity endorsements likewise Customer reviews and photos reassure others in terms of hassle, fit, look, price etc.	Meaning Importance	Expert choice Social proof Provoke empathy Worry resolution

Table A3. Summary of examples from Patagonia Worn Wear website. Which consumer factor does each address, and which design dimension or DwI pattern does it use to affect this?

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Awareness			
Contamination/Disgust/Newness	Homepage headline 'Better than New' is a surprising way of describing old clothes Likewise 'Scars tell the story' anthropomorphizes the clothes	Meaning Importance Empathy	Rephrasing & renaming Playfulness Provoke empathy Personality
Convenience/availability	'We wash it' 'Trade in at a store near you'	Encouragement	Reciprocation
Ownership	n/a		
Cost/financial incentive/value	'You get paid' 'See how much your clothes are worth' Customers are encouraged to see their waste as valuable, and a list of trade-in values is available as a download	Encouragement Importance	Rewards
Environmental impact	'Keep the Worn Wear Cycle in Motion and Avoid the Landfills'	Importance Direction	Emotional engagement Assuaging guilt
Brand recognition/image/design/intangible value	'Retro' imagery and coloring evoke the values of a previous age and Patagonia's emphasis on repair, reuse, and quality Partnership with iFixit reinforces Patagonia's values-based emphasis on repair	Meaning Empathy	Storytelling Mood Color associations Provoke empathy
Quality/performance	Homepage mention of 'high quality stuff that lasts for years and can be repaired, so you don't have to buy more of it' spells out the company's commitment to quality, and consideration of the customer's time and money	Empathy Direction	Worry resolution Assuaging guilt

Table A3. *Cont.*

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Customer service/communication/supportive relationships	'Repair and Care' detailed product repair and care guides provide ongoing customer service after purchase. Designed to Endure' video (terms such as 'fabric doctors', 'gurus of everlasting thread', 'we take care of each piece by hand' emphasize the company's expertise and focus on care, repair and longevity of items)	Empathy Encouragement Direction	Emotional engagement Metaphors Rephrasing &renaming Assuaging guilt
Warranty	Patagonia's Ironclad Guarantee offers replacement or refund, even for worn items	Encouragement	Assuaging guilt Metaphors ('ironclad' evokes Patagonia's trustworthiness)
Peer testimonials/reviews	'The Stories We Wear' page is full of customers' stories of their experiences and memories with their Patagonia gear, emphasizing its quality and longevity	Meaning Empathy	Storytelling Provoke empathy Social proof

Table A4. Summary of examples from Elvis & Kresse website. Which consumer factor does each address, and which design dimension or DwI pattern does it use to affect this?

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Awareness			
Contamination/Disgust/Newness	'Rescued raw materials', 'decommissioned' fire hose, 'reclaimed' banners, 're-engineered' blankets: the word choice anthropomorphizes used or second hand materials to bring about a new perspective and elicit customers' sympathy and emotional connection with the materials. 'Each bag unique': non-uniform waste materials are reframed as one-off exclusive pieces. Fire hoses have a 'distinguished career' and 'eventually get retired', are a 'heroic material' which make an 'exciting alternative textile'	Empathy Meaning	Provoke empathy Emotional engagement Rephrasing &renaming Framing
Convenience/availability	'You don't need to worry': bags are wipe clean, keep contents dry, big enough for a laptop etc.	Empathy Encouragement	Worry resolution
Ownership	n/a		
Cost/financial incentive/value	High cost of product implies its status as valuable material rather than waste Limited edition	Importance	Framing Scarcity

Table A4. *Cont.*

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Environmental impact	E & K are honest about the recycled source of their materials, ie fire hose, printing blankets, parachute silk, coffee sacks, leather Re-engineer 'seemingly useless wastes', 'rescue' and 'individually cut' and 'lovingly hand weave' these wastes	Empathy Obtrusiveness	Transparency Emotional engagement
Brand recognition/image/design/intangible value	'Rescue, Transform, Donate', 'We love to share': the cycle of rescuing materials and donating profits is key to the brand, as are values -'Sustainable luxury', 'ethical travel' etc. Also the story: 'Our Story' page with video ties in brand with emotive story of firefighters and rescue and highlights its purpose beyond profitmaking. E & K is the ultimate rescuer by saving materials from waste and helping firefighters charities. Earthy colors evoke the fire/firefighters/rescuers and natural materials that are key to the brand. E & K's accreditations (B-Corp member, Positive Luxury, Brand of Tomorrow, Women's Initiative etc.) communicate its purpose-driven status	Meaning Empathy Importance	Mood Storytelling Transparency Emotional engagement

Table A4. *Cont.*

'What'		'How'	
Consumer Factor	**Examples of Factor Being Addressed in Digital Marketing**	**Dimension of Behavior Change**	**Design with Intent Pattern**
Quality/performance	'Previously deployed in active duty for 30 years'—anthropomorphic phrases liken the materials to the people that used them, give them a story and reassure customers of their durability Limited edition products also imply quality 'Timeless design', 'hardwearing', 'a whole new kind of luxury'—rescued and hand crafted, 'beautiful leather', 'we lovingly hand weave'	Meaning Importance Empathy	Metaphors Provoke empathy Scarcity Storytelling
Customer service/communication/supportive relationships	Mailing list, social media and direct mail contacts as well as a personalization service are all available. The communication of the business and its mission seems authentic and transparent, both in terms of material sourcing and genuine care for the customer experience	Encouragement	Tailoring
Warranty			
Peer testimonials/reviews	Pop-up banners on the site tell customers every time someone else buys a product, e.g., 'Adam from Cardiff purchased a tote bag'. News page lists public appearances and media mentions and makes clear the company's purpose-driven ethos ('doing good is doing well'), showing its status as more than a retailer	Empathy Importance	Social proof Expert choice

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Paper 2

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Dimensions of Behaviour Change in the context of Designing for a Circular Economy

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Paper 3

Chamberlin, L., Working paper: Designing communications for a circular economy: information design and narratives for social change. In proceedings of ISDSRS, The 24th International Sustainable Development Research Society Conference, Messina, Sicily, June 2018

Working paper: 'Designing communications for a circular economy: information design and narratives for social change'

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Abstract

The story of the circular economy has sparked growing discussion and innovation amongst businesses, yet the role of the customer remains underexplored and a challenge to the implementation of circular designs and business models. Customer involvement may require new behaviours such as rental, repair or return (here we propose 7 'R's in the style of similar 're' models), which represent a departure from traditional purchase-based transactions. Although some fields of sustainable design have developed concepts of design for sustainable behaviour, these have focused on product or service rather than information design, and so-called 'green' marketing has had mixed results. The paper reviews some literature from the fields of service marketing and service design, and finds the concepts of the customer journey and 'touchpoints' useful to describe the enhanced communication and interactions that may be required between organisations and customers in a circular economy. It also explores literature from the field of information design, and the potential of visual rhetoric and narratives in particular to affect engagement and even behaviour change. Code play and narrative transportation for instance have been shown to constitute persuasive techniques in healthcare communications and in consumers' adoption of novel products by reducing their resistance to the message. Further development and empirical studies are needed, but current indications are that visual communication can have a significant role to play in engaging customers with the new behaviours required in a circular economy, and this will have important lessons for many organisations.

Keywords: circular economy, information design, service design, visual rhetoric, narrative

1. Introduction

Although models of material cycling and environmental sustainability have been around for several decades, the concept of a circular economy has gained particular attention over the last ten years due to work by the Ellen MacArthur Foundation and endorsement by the European Commission (Commission, 2015). The circular economy has revived the concept of sustainability by capturing the imagination of businesses and making eco-economic decoupling more of a possibility. However, the difficulty of introducing new business models and practices such as product service systems, reuse and return to consumers and of turning these new narratives into action is a major challenge to the success of the circular paradigm. Circular economy may require new behaviours and increased involvement of the customer or user in the product life cycle, for example returning or reselling an item in addition to the original purchase, or subscribing to a service (as in a product service system or PSS, (Tukker, 2004)). The concept of touchpoints as applied in service design (Polaine et al, 2013) can provide a useful conceptual framework for the different channels whereby a customer might be first familiarised with a circular economy brand, and then involved in a product's onward or return journey. But a question remains as to how the engagement and participation of the customer can be achieved.

Studies in the transdisciplinary fields of design for sustainability and design for behaviour change (DfS /DfBC) have examined the potential of product and service design in promoting behaviour change for sustainability, largely through a sliding scale of control or information measures that encourage or force people to comply (Boks, 2018; Zachrisson Daae & Boks, 2014). Information alone can be problematic, as the customer or user is in total control and may choose not to comply (e.g. information-based approaches such as green labelling have had mixed success, (Peattie & Crane, 2005; Rex & Baumann, 2007)). However, the control side of the scale also represents difficulties in terms of the ethics of coercing users to behave in certain ways, and the possibility that they may react against perceived control (Zachrisson Daae & Boks, 2014). This paper focuses on the 'information' side of the scale and explores two techniques of visual communication that move beyond labelling

and may be useful in engaging customers with the new behaviours required of them in a circular economy, namely visual rhetoric and narratives. The power of written or visual messaging to change ingrained attitudes and values is perhaps limited, but certain configurations of message content and style have been shown to affect participation outcomes and behaviour. For instance, puzzlement and narrative techniques have successfully introduced people to new healthcare behaviours and innovative new products – though these may be used in more or less ethical ways (greenwashing has been criticised for selling a spurious story of sustainability (Grant, 2007; Peattie & Crane, 2005), and of course the advertising industry has made use of both techniques to sell products and services to people in the conventional linear economy).

One overarching question therefore is whether new or different forms of communication are necessary for engaging people with circular behaviours and value propositions than have been used for purely commercial or linear propositions in the past. This is too broad a conundrum for the present initial and exploratory study however, and the research question proposed is therefore as follows: *How can the design of visual communications at the touchpoints engage customers with the new behaviours required in a circular economy?*

2. Methods

The methodology of this paper is purely exploratory and conceptual, and involved using scoping techniques to review literature from the business services, service design and visual communication fields. Several articles from the recent collection on information design (e.g. Boag, 2017; Jansen, 2017; Kostelnick, 2017; Moys, 2017) were found to be useful, and a 'snowballing' approach was employed to source further articles and texts on the topics of visual rhetoric and narrative. It should be noted however that this is a working paper, and it is intended that the concepts are developed further and lead on to empirical studies.

3. Customer participation in a circular economy

The number of academic studies on the subject of circular economy are increasing, but although attention is being paid to circular design, business models and material processing, the issue of customer activities and the changes that will need to be wrought in terms of people's everyday behaviours has been largely neglected (Kirchherr et al, 2017; Piscicelli & Ludden, 2016; Schotman & Ludden, 2014). The fields of Design for Sustainability and Design for Behaviour Change are relevant in that they have studied the effect of product and service design on people's behaviour in a sustainability context usually during the use phase, but these have generally not focused on the role or design of information specifically, and have not examined the series of interactions or touchpoints that comprise the customer's whole experience (Boks, 2018; Zachrisson Daae & Boks, 2014).

The role of customers in a CE is in fact vital, as their participation will determine the success of new business models and practices such as extended use or recovery of products, design for disassembly or product service systems (PSS) (Bakker et al, 2014; N. M. P. Bocken et al., 2016; Hollander et al, 2017; Tukker, 2013). Rather than being perceived as merely a purchaser of goods or user or experiencer of services, these strategies dictate that customers be involved in additional activities such as the return, rental, reuse or resale of items. They must also change current practices, for example from buying new to buying used items or renting those items instead. In the tradition of 'R' models and waste hierarchies (see Kirchherr et al., 2017), 7 'Re' activities are here suggested (see Table 1) that customers specifically might participate in as part of a CE, though these do not represent any kind of hierarchy and are extrapolated from the business models and practices suggested in literature rather than direct empirical research (Bakker et al., 2014; Ellen MacArthur Foundation, 2013; Hollander et al., 2017; Piscicelli & Ludden, 2016; Weelden et al, 2016).

1. Return an item to the retailer, or to a third party
2. Repair an item themselves

3. Resell an item via an internet platform or offline
4. Rent or access a product/service as an alternative to ownership
5. Re-buy an item that has been previously used, repaired, remanufactured or recycled
6. Retain an item to prolong its life and postpone disposal
7. Remunerate, i.e. pay more for an item or service that has greater longevity

Table 1: 7 'Re' activities of customer behaviour

In a circular economy, products are 'objects with a career' or 'assemblages of materials' (Spring & Araujo, 2017) that are stabilised and then transformed, for instance when repaired or downcycled, with each transformation or circulation (or service) enabled by networks of actors –including customers. For many models of CE, it is clear that customers will need to be increasingly engaged with the life cycle of the products they use, and that organisations have a role to play in facilitating this behavioural change at different stages of engagement –through business models, but also through marketing and communication (N. Bocken, 2017).

4. Services, marketing and customer experience

In the field of business and marketing, a goods-dominant approach has given way to a service-dominant logic in recent years (Vargo & Lusch, 2004). The service-centred approach is consistent with stronger market orientation and longer customer relationships, ultimately leading to increased profits and more successful business (Bolton, 2016). Traditionally, companies focused on the moment of product purchase, utilising functionalist and short-term methods of persuasion to prompt a transaction (Duncan & Moriarty, 1998). But a service-based approach moves beyond this to focus on building relationships with customers whom it sees as participants in value co-creation. (Ballantyne et al, 2011). Traditional goods-based marketing considers price, product, promotion and place, but services marketing includes the management of processes and people, meanings and relationships (Bolton, 2016; Duncan & Moriarty, 1998). Goods become service 'appliances', and value is a measure of experience rather than acquisition, determined by the customer at the time of use.

This changed perspective has meant that organisations are increasingly interested in building longer term relationships with their customers (Bolton, 2016), and is also more in line with business models like product service systems (PSS) and servitisation (Lightfoot et al, 2013; Tukker, 2013) which have been proposed to support a CE through the integration of physical products and associated services. Such models imply the potential (but not guarantee) of providing a sustainable solution to resource requirements through the provision of results or functions without necessitating outright purchase or ownership of a product (Bhamra et al, 2017).

Reciprocity and negotiation emerge as features of these new service-based customer relationships, and the role of communication as *process* rather than *transfer* is brought to the fore: interactions with customers are extended over time and bring new possibilities for value creation, as SD logic recognises the importance of sustaining relationships at various interaction points (Ballantyne et al., 2011). For instance, in a circular economy communications may be required to ensure that a customer knows how to repair a product themselves, or brings it back to the retailer after use so that it can be checked and rented to another.

Customer experience has been defined as the 'cognitive, emotional, social and behavioural dimensions of all activities that connect the customer and the organisation over time, including all touch points and channels' (Bolton 2016, 4-5). Every communication that a customer has with a company will confirm or redefine their impression of it (Boag, 2017; Duncan & Moriarty, 1998), and for service-based models this includes the prepurchase, purchase, consumption, engagement and

nonpurchase phases –all of which may form part of the customer journey (Bolton, 2016). Circular and PSS or servitization models in particular emphasise the transformation of products, materials and value through different lifetimes, thus providing opportunities for new services or customer communications at each stage (Spring & Araujo, 2016). In other words, in order to maximise material efficiency and reduce wastage, as part of a CE information and communications must accompany and facilitate the transition of materials through the system.

Of course, as with non-CE models, customers' attention and responses will be guided by their practical and emotional goals and motivations, and although consistency across different media should be a goal, any brand's communications will be differently understood by different people in different situations (Bolton, 2016). Moreover, in the increasingly digitalised and online world of communications and sales, the market becomes a 'network of social actors with economic interests' (Ballantyne et al., 2011). The new world of social media allows communications increasingly to be two-way instead of one-directional, with customers co-creating and co-producing their experience through sharing information within or outside organisational parameters (Bolton, 2016). The challenge for businesses is how to manage the service process and shape the CE customer experience across its many touchpoints.

5. Service design and the circular economy customer journey

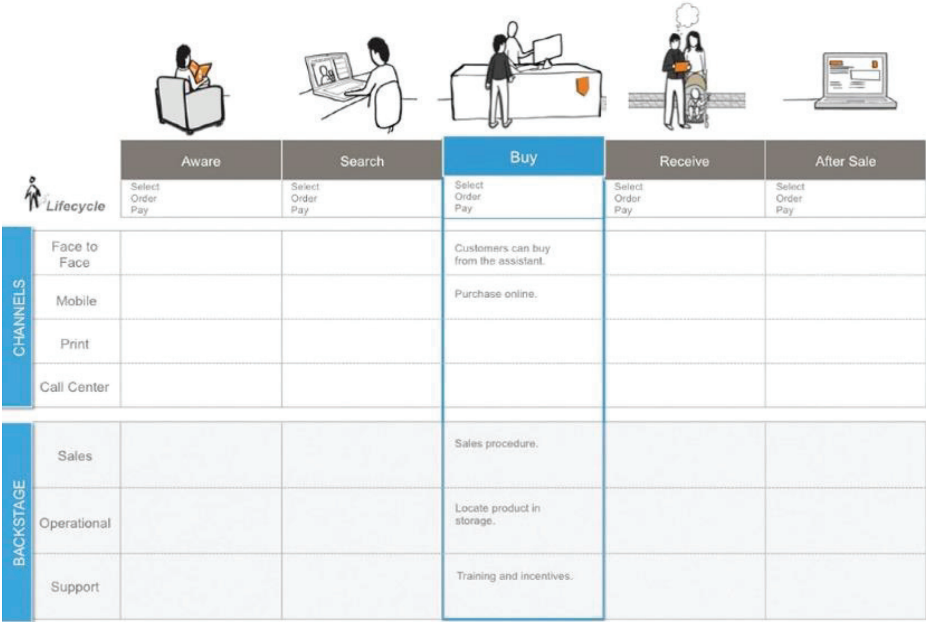

Figure 1: The customer service journey. Different rows and columns represent different touchpoints along the way. (LiveWork, 2018)

The field of service design deals with the shaping of experience for a service recipient, such as a customer, and often with the co-production or co-creation of experiences by service recipients too (Polaine et al., 2013). Although there is a lack of consensus as to its definition (Schneider et al, 2011), service design focuses on people and performance rather than product, with practitioners (e.g. designers, marketeers, customer service managers) using techniques of experimentation and iteration to create a desirable and usable service for their customers (Saco & Goncalves, 2008). Service designers use models such as the customer journey in order to take a holistic and people-focused approach to designing customer experiences (e.g. Figure 1 (LiveWork, 2018)). Rather than the one-time contact between supplier and receiver that occurs with a transactional product

sale, the delivery of a service evolves over time and involves several contact points between the two. Each interaction or touchpoint is an opportunity for involving and communicating with the customer and contributes to the overall service experience (Boag, 2017; Duncan & Moriarty, 1998), and the growth of CE models such as PSS or servitization therefore necessitates a much richer understanding of the touch points, networks, episodes and customer journeys that facilitate a material or product's career (Spring & Araujo, 2016).

In a CE, the customer service journey would include not just awareness, purchase, use and after sales but also 'after use' options, such as return or resale, that aim to keep the product in circulation after the initial customer has finished with it. For instance, we can divide the 7Rs of customer behaviour into three phases of purchase or acquisition, use and after use (see Table 2) – though of course there will be many other opportunities for communication and interaction between the organisation and the customer.

Purchase /acquisition	**Use**	**After use**
Rent	Repair	Return
Re-buy	Retain	Resell
Remunerate		

Table 2: The 7Rs can be divided into different phases along the customer journey

Customers are influenced by and get information from many different channels and sources, for example traditional word of mouth, online or offline advertising or social media, and these channels create a 'portfolio of touchpoints' providing hedonic or utilitarian value (Bolton, 2016). The touchpoints that resonate for each customer will depend on their own goals and situation, and their experience will be embedded in a 'rich context' at any point in time, so managing these information flows to complement the CE customer journey is a challenging and complex task for any organisation.

6. Engaging customers with CE through visual communication at the touchpoints

An organisation sends out messaging at the touchpoints through elements and signals such as its design, pricing, corporate strategy, guarantee, use of language and imagery and brand –the perception of which drive customer behaviour and can strengthen or weaken relationships. The information provided helps people structure their environment, make decisions or interpretations, ascribe meanings and take actions, and thus a focus on the communication at these points of interaction is key (Duncan & Moriarty, 1998). Material inefficiencies and waste occur for many reasons, a major one being because a product's affordances (Norman, 2013) provide information as to its usage but not its end-of-life scenarios (e.g. how or where customers should return or resell them). Therefore the signifiers that communicate the operation, purpose and future potential of the item (Norman, 2013) and the actions that a customer should take at the various interaction points are crucial. For example, in the UK a lack of well-designed information as to the importance of retaining fire-retardancy labels on sofas leads to thousands ending up in landfill every year (The Great Recovery, 2015).

Products, of course, can define a brand. But for services and product service systems the touchpoints themselves make an important contribution to the brand experience, as it is these which allow the organisation to interact and maintain an ongoing relationship with the customer. And it is the combined information available to customers at the touchpoints – such as the websites or marketing materials they have come across, sales people and media articles, their previous experience, the look of

an item itself, – that creates a ‘system image’ and conceptual model (Norman, 2013), and informs their understanding of how the CE product system or flow of materials should work.

In an increasingly digitalised world where many of the touchpoints (websites, social media, signage) will not involve sales personnel, the design and presentation of visual communications during these customer interactions is particularly important. According to Bruce Brown there are three modes of visual communication: persuasion, explanation and identification (Boag, 2017), and the brand must use all three to identify and promote itself and explain where the customer is in their journey. The design of the content, layout, language and interaction features for example can impact the whole customer journey from start to finish (Boag, 2017). As with advertising, even though the communications at these touchpoints exist at the periphery of the receiver’s awareness, they have the ability to attract attention and create positive (or otherwise) associations (Cook, 2001).

Creating visual communications that will engage customers with CE behaviours at the touchpoints can be more of a craft than a science. Visual languages employed in information design, as in advertising, are shaped by historical, aesthetic and cultural codes and conventions which are constantly in flux and contingent on the societies and users who sustain and adapt them (Cook, 2001; Kostelnick, 2017). New digital tools for instance can both perpetuate and recreate established conventions, whilst people’s previous experience of genres provides the context for their interpretation of new texts. Meaning is not so much transmitted by a company but created by the customer according to complex interplays of semiotic codes and conventions that they are often unaware of (Chandler, 1994), and people can be so familiar with a medium that they are anaesthetised to the effect of its mediation. By engaging with it, however, they ‘both act and are acted upon, use and are used’ (p10, Chandler 1994).

Information design may aim to persuade the reader or viewer, though it takes on elements of explanation and identification as well. Obvious attempts at persuasion can be controversial, and therefore blending it with explanation – as in advertorials – can increase credibility and participation (Boag, 2017). Good information design is more likely to get the reader to act on the message, it increases a company’s perceived value and facilitates interaction between organisation and user –and has also been shown to increase trust in the brand, customer satisfaction and efficiency, and reduce confusion and malpractice –for instance in healthcare .

7. Visual Rhetoric

The study of rhetoric is the investigation of patterns of language usage considered to stand out in terms of their phrase, form or style, and used ‘for exerting particular effects on hearers or readers’ (Bateman, 2014). Originally a term to describe public speaking in the Classical world, in the 20th century Barthes started to apply the principles of these Classical tropes to non-verbal semiotic systems, and other researchers to explore how the way in which a message is expressed influences its effect on an audience(Bateman, 2014). The growing importance of visual media compared with linguistics in more recent times has added to the significance of visual rhetoric, as the design of a text (including pictorial or illustrative aspects and its structure and style) can function to influence the reader’s processing of information and even a fleeting glance can provide enough information to turn the viewer off or peak their interest (Moys, 2017). Rhetoric can be understood as persuasion, and visual rhetoric uses graphical design to present and share meaning, facilitate engagement with information and visually articulate relationships and support interpretation. Its persuasive powers have made it particularly important for conventional advertising, marketing and social campaigns, though even modes focused on usability such as maps and signage will also comprise visual rhetoric (Moys, 2017).

According to MacDonald-Ross and Waller, ‘good graphic design allows one to say in words and illustrations what could not be said in either form alone’ (quoted in Moys, 2017). Related to a text’s presentation or graphical design, people may make rhetorical judgements for example about the credibility or accessibility of the content, the intention of the organisation or the value of the service (Moys, 2017), and thus certain symbols or signs can be employed to convey some intangible aspects of the customer experience, like reliability (Bolton, 2016). Moys (2017) suggests that ‘semantic simplicity’ should be the aim,

and that space, typography, type weights and colour can be used to enhance legibility, graphic elements, structure and impression –even though different users and contexts will have different preferences. Exaggerated stylistic differences for instance can be seen as sensational or superficial (as in tabloid newspapers) –whilst the most credible layouts are orderly, evenly spaced and use rules or boxes or weighting as necessary to indicate authority. Some organisations try to use graphical features to create ‘sticky’ websites or environments that will differentiate them from competitors, tempt shoppers in (Bolton, 2016) and then retain or get them to return again and again.

As well as straightforward credibility or authority, rhetorical devices can also provide a so-called ‘artful deviation’ (Corbett and Connors ’98, quoted in (Cook, 2001)) by shaping and drawing attention to a message for its memorability or persuasiveness. Rhetorical features such as rhyme, anaphora, parison, antimetabole, hyperbole, metonym, metaphor, syllepsis, antanaclasis and paradox may be employed through linguistic or illustrative means, such that the receiver of the message has to ‘work’ to interpret or engage with it, their involvement is increased and persuasiveness and memorability are heightened (Bateman, 2014). Puzzling messages that involve the understanding and processing of clever arrangements of signs give the reader a feeling of pleasure or reward and are more likely to prompt a discussion which can then lead to a change in social norms and behaviours (Jansen, 2017). These techniques have been utilised both in healthcare communications (Jansen, 2017) and also in conventional advertising, where the concept of ‘code play’ refers to the innovative use of language through rhythm, sound, grammar and meaning in order to attract attention, play with expectations and provide pleasure to the viewer. Rather than referencing the desired behaviour directly, for instance, it is the riddle-like or lateral thinking aspects of the adverts that give satisfaction and make an impression on the audience when they are able to decipher them (Cook, 2001).

Some companies that already endorse circular economy-type business models or promote circular customer behaviours have shown that visual rhetoric techniques such as these can be effective. For example, Patagonia’s 2011 Black Friday advertisement exhorts consumers not to buy their jacket (see Figure 2). In what Adweek termed the ‘most potent environmental appeal of the season’ (Nudd, 2011) it uses counterintuitive messaging as a stunt to grab the viewer’s attention and get them to consider the potential hypocrisy involved in consuming fashion whilst professing care for the environment. Rather than persuading customers just to purchase a product, and indeed it almost certainly harmed sales in the short term (Nudd, 2011), it entices them to buy into the Patagonia brand for the long term, thus creating a loyal community of people who are more likely to change their behaviour by buying things that last and participating in activities like repair, reuse and recycling (Allchin, 2013)

DON’T BUY
THIS JACKET

Figure 2, Don’t Buy This Jacket (Patagonia, 2011)

8. Narrative

The medium of narrative, or storytelling, is also an effective model for communication and one that has been used by brands over many years to create connections and build relationships with their customer groups. Stories inform life. People use them to make sense of reality and create meaning, to organise and share human experience, convey moral truths and bring order to disorder (Brown, 2017). Stories promote understanding through empathy and a basis in real life (Nussbaum, 1998), they can

fuel the imagination, make data human and even act as a tool for persuasion by helping people to grasp new concepts (Quesenbery & Brooks, 2010). Just as the real world provides a template for fiction, so fiction can influence the attitudes and behaviours of real people (Cook, 2001). According to Don Norman,

> 'People are innately disposed to look for causes of events, to form explanations and stories. That is one reason storytelling is such a persuasive medium. Stories resonate with our experiences and provide examples of new instances. From our experiences and the stories of others we tend to form generalisations about the way people behave and things work.' (Norman, 2013)

Stories have a beginning, middle and end, are connected by a plot, raise questions or conflict and then provide resolution, and generally make use of perspective, characters, imagery and language (Hinyard & Kreuter, 2007). Like services, stories deliver value through a form of experience. Both emerge from the interactions between people, places and objects, and stories are even used in service design to develop concepts and services based on users' needs, for example as with storymapping (Lichaw, 2016). According to Berger, narratives are 'stories that take place in time' (quoted in Bateman, 2014). They can be carried by written or spoken language, gestures, fixed or moving images or a mixture of these, and are transcultural, transhistorical and international (Barthes, quoted in Brown, 2017). The narrative turn has seen a growth of awareness about narrative as a metaphor for social practice and sensemaking, and it has been shown for example that linking new technological transformations to national narratives can facilitate their success (Malone et al, 2017).

When it comes to the introduction of new behaviours such as those required of consumers and users by the more servitized models of a circular economy, taking a narrative approach at the touchpoints may prove more effective than traditional advertising or transactional messaging. People often resist perceived pressures for behavioural change as they prefer to determine their own course of action, but the Entertainment Overcoming Resistance Model (EORM) suggests that immersion in a narrative through transportation, identification and parasocial interaction may be an important means for audiences to adopt behaviours consistent with the story (Jansen, 2017). The viewer may be absorbed by the narrative, imagine themselves as a specific character or experience a seeming relationship with one. 'Being swept into the story makes them less aware of its persuasive intent', according to Jansen (2017), and they are less likely to be resistant to the message. In the healthcare sector narratives have been shown to be particularly effective as a form of communication, for instance fotonovelas used in the Americas have been effective in changing behaviours, as the narratives portrayed are more culturally relevant to an individual's situation (Jansen, 2017). For cancer patients narrative communication was shown to be more realistic, personal, memorable and believable than other forms of communication as they could overcome resistance, facilitate information processing, provide surrogate social connections and address emotional and existential issues (Kreuter et al., 2007).

Likewise Narrative Transportation Theory has shown that people may be immersed in the things they watch or read and transported through a combination of attention, imagery and feelings. They see themselves involved in the action, forget the world around them and imagine themselves to be the characters (Van Den Hende & Schoormans, 2012). This has been used during new product evaluations, where customers' imaginations can be guided by narratives about a protagonist who is shown to use the new product in various situations and actions. Reader-protagonist similarity is helpful and visual imagery makes the story more self-relevant, but readers can also be transported through explicit instructions as long as the information given has a coherent narrative with a context, meaning and story (as opposed to a list of bullet points for example, which lack the 'self emplacement' that comes with this narrative structure) (Van Den Hende, Dahl, Schoormans, & Snelders, 2012). The more a new product narrative can transport the customer, the more likely they are to experience a new product as a replacement. Marketing literature shows that transportation leads to more positive evaluations of advertisements and new products, as a vicarious experience of use reduces uncertainties and negative preferences (Van Den Hende et al., 2012). Narratives with drawn images can provide a vivid experience of using the product and compensate for a lack of realism, but images without narration are shown to be not enough to transport the reader. This mental visualisation helps customers to learn about new products that they cannot compare to existing ones, and predicts later preferences after use; a more vivid narrative experience

contributes to more positive attitudes to the product. ‘Interaction, ease of use and aesthetic evaluations will be more positive for technology applications presented in a narrative form than for product applications presented without narration’ (Van Den Hende & Schoormans, 2012).

There do not seem to be many examples of CE businesses using narrative communications to engage with customers, though the Norwegian second hand clothing brand Fretex does use some narratives to accustom them to the idea of clothing reuse (see Figure 3). Messaging at key touchpoints evokes a story of clothes that are actively helping to alleviate poverty (‘klaer som hjelper’), whilst a video series called ‘Mannen som levde pa Fretex’ uses narrative transportation techniques and humour to overcome customers’ resistance and draw them in to new reuse behaviours by presenting them with these as social norms.

Figure 3, Fretex’s ‘Klaer som hjelper’ (clothes that help) (Fretex, 2018) *and ‘Mannen som levde pa Fretex’ (the man who lived by Fretex)* (Fretex, 2016)

9. Discussion

Rather than merely being a way of representing the world, we can see that communication is also a means to galvanise action and make things happen (Franceschini & Pansera, 2015). Of course, advertisers have used visual rhetoric and narrative techniques successfully for many years to draw customers in to traditional, linear modes of consumption and use, and it should be noted that previous attempts to use communication to influence customer behaviour towards less environmentally harmful options have often been deemed a failure. Green marketing, and especially environmental labelling programmes, suffer from a confusing array of options that have neglected to take people’s biases, norms and behaviours into account, and have therefore been viewed with mistrust and disregard (Peattie and Crane, 2005; Boks, 2006; Rex and Baumann, 2007), and many brands have also been accused of greenwashing. But a green label or symbol on a product represents a lone signifier at one moment in time, rather than a narrative that engages customers through different touchpoints along a customer journey. Narrative transportation has been proved to facilitate both positive behavioural shifts in healthcare and the adoption of radically new products and technologies for example, although the consumption of new products is unlikely to fit within the material-efficient models of CE.

Nevertheless, for customers the CE is likely to involve both behavioural changes or shifts, such as moving from outright purchase or ownership to ‘rent’ or ‘rebuy’ models, and the take up of entirely new activities, such as the ‘return’ or ‘resale’ of items to third parties at their end of life (it should be noted that rental or return are already familiar in some sectors and cultures, for instance the ‘pant’ system in Norway, but they remain an exception for most). The new behaviours and extended relationships required are likely to increase the importance of the communication techniques that facilitate them. The customer journey of a CE or service business can be seen as a kind of metaphor for narrative, as it evolves over time, includes many characters and relationships, and conveys experience. As has been shown with the examples of Fretex and Patagonia, visual rhetoric and narrative techniques are already used by some circular-type organisations, but it is important to draw attention to the theory behind and potential impact of these techniques as enablers in the adoption of such new consumption and use models as are implied by CE.

It remains unclear whether entirely new forms of communication are necessary in order to engage customers with CE behaviours. However it has been shown that visual rhetoric and narrative can play an important role in engaging people with new behaviours and consumption activities, through methods such as linguistic tropes, code play and narrative transporation. The service design notion of touchpoints also represent a useful model for demonstrating the many interaction points at which these engagements may take place.

10. Future research

This paper has explored the relevance of visual rhetoric and narrative communication in engaging customers with service-based circular economy businesses. However, it has taken a purely conceptual and theoretical perspective, and thus empirical studies will be necessary to confirm and gauge the relevance of these types of communication for circular economy organisations, and their effect on the engagement and behaviour of different customer groups. For instance, narrative and non-narrative communications can be designed for touchpoints of the same brand, and customers then asked for their preferences. The question of whether CE requires radically different forms of communication to effectively engage with customers also remains for future study.

11. Conclusions

If we are to shift the behaviours of customers towards those more compatible with a CE, we will need to use communications that can effectively engage them with such activities as the 7Rs. The increased emphasis on enhanced customer relationships in service businesses and the service design concepts of a customer journey and touchpoints are useful models for mapping the amplified interaction between organisation and customer that CE is likely to entail. Visual rhetoric and narrative techniques also represent effective potential methods for engaging customers in new circular behaviours, through code play and tropes and narrative transportation, and it is suggested that this will have important implications for organisations that adopt CE models.

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Paper 4

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1 *Type of the Paper: Research Article*

2 **Spark Joy and slow consumption: an empirical study of the impact of the KonMari method on**
3 **acquisition and wellbeing**

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8 **ABSTRACT**

9 In the context of resisting throwaway culture and aiming for a sufficiency-based circular economy, it is vital
10 that consumption is slowed down - both in terms of reduced acquisition and reduction of the volumes of
11 material resources moving through the system . To date it has been difficult to engage mainstream consumers
12 with sustainable consumption practices, including sufficiency, but we suggest that the recent growth in
13 popularity of decluttering, self-care and other wellbeing movements, exemplified here by Marie Kondo's
14 globally successful method for tidying up, may help. We review the topics of sufficiency and wellbeing, the
15 potential of material interaction or ritualised reflection for behavioural transformation, our interpretation of
16 consumption 'moments' and the KonMari decluttering method before introducing the empirical study which
17 took place in Sweden and the UK and Ireland. Participants were recruited through Facebook groups, with
18 around 300 surveyed and 12 interviewed in each geography, and the interviews were qualitatively coded and
19 analysed. Findings were surprisingly similar, highlighting a significant shift reported by participants in their
20 approach to consumptionfollowing their introduction to and practice of the method, in particular a more
21 reflective and restrained approach with regard to the acquisition of new things. Taking into account initial
22 increases in disposal, the method of reporting findings and dangers of rebound, we cannot conclude that
23 KonMari is a straightforward route to reduced consumption. Nevertheless for those who have embraced the
24 ritual and created a more desirable home environment by discovering what 'sparks joy' for them, it seems
25 that a change in the meaning of material acquisition or possession and a slowing down of consumption
26 through a reduction in shopping can be an unintended result.

27 **KEYWORDS:** Sufficiency; sustainable consumption; slowing consumption; decluttering; circular economy;
28 KonMari; Marie Kondo; wellbeing; reflection;

29 **INTRODUCTION: DECLUTTERING, SUFFICIENCY AND THE KONMARI METHOD**

30 In 2014 Japanese tidying consultant Marie Kondo introduced her KonMari method in the international
31 bestseller *The Life-Changing Magic of Tidying Up*, followed by *Spark Joy* in 2016 and the Netflix series *Tidying*
32 *Up with Marie Kondo* in 2019. The widespread success of both the books and the series together with the
33 numerous blogs and articles that they have spawned and the global reach of her brand signals that Kondo's
34 approach has struck a chord with people in different cultural contexts. In a recent article, Khamis presents
35 Marie Kondo's method as part of a trend of decluttering, minimalism and alternative consumption that
36 seemed to emerge following the global financial crisis in 2008 and growing awareness of and discomfort with
37 the implications of neoliberal capitalism (1).

38 Decluttering itself emphasises the value of having less, of replacing assumptions that 'more is better' with
39 the concept of 'enough' (1), and releasing the stress and anxiety associated with multiple possessions. As such
40 it coincides with the recent rise in popularity of trends such as minimalism, slowing down, making more time
41 to relax, exercise and eat healthily and replacing an ethic of self-improvement and economic success with one
42 of self-love, acceptance and finding meaning outside the pursuit of material possessions (2–4). Concepts such
43 as these may have significant consequences for environmental as well as social sustainability, since ideas of
44 personal wellbeing are associated with leaving the 'hedonic treadmill' of ever-accelerating work and
45 consumption in pursuit of a less materialistic happiness (5,6).
46 In her books and other media, Marie Kondo frames her method of decluttering as a way to achieve
47 wellbeing. In contrast with alternative consumption movements from the literature on sustainable
48 consumption(e.g. anti-consumption, see below) which have seen restraint as a moralised response to
49 capitalist cultures of overconsumption and waste (7,8), or as a route to sustainable living (9), Kondo presents
50 her method as a joyous route to personal freedom and the end of physical and mental clutter (10). Khamis
51 terms this the 'aestheticization of restraint', indicating that the KonMari method is part of a wider trend of
52 alternative practices that tend towards a shift or reduction in consumption, but that nevertheless remain
53 consistent with current neoliberal economic frameworks (1). A moral standpoint against consumerism, or a
54 green living crusade is not part of Kondo's narrative: one can be a consumer *and* practice the KonMari
55 method, and if material belongings 'spark joy' (Kondo's phrase) then they should be kept and appreciated.
56 KonMari somewhat contrasts with other more minimalist decluttering methods, such as Swedish Death
57 Cleaning or the One Method (getting rid of one item per day), in its emphasis on the joy that comes with
58 putting one's house in order rather than on the imperative of ridding. Consumers' material relationships are
59 influenced by culture, tastes and trends, and rituals of disposal or non-consumption as well as acquisition or
60 possession can be markers of distinction and consumer value (1,11,12). Just as people create meaning and
61 identity through material goods (12–14), so the activities of sorting, discarding and decluttering can allow for
62 new selves and meanings to be created, with or without possessions. In shifting the focus from stuff to self
63 moreover, such activities may represent an implicit resistance to marketplace ideologies of acquisition and
64 accumulation, and the reassertion of people as autonomous self-authors rather than victims or even
65 sovereign consumers (1,15). In other words, although practitioners are primarily concerned with personal
66 happiness rather than environmental or social altruism, decluttering may represent an accidental entry point
67 to more intentional forms of alternative consumption.
68 In terms of the literature on sustainable consumption and pro-environmental behaviour, common
69 criticisms have been that only a small niche of consumers with strong green values or identities are
70 addressed and mainstream consumers with conflicting priorities are ignored (16,17). Moreover a reliance on
71 labelling or information campaigns and cognitive behavioural methods have resulted in a lack of active
72 engagement with more sustainable practices on the part of consumers (18). At the same time, it is
73 increasingly evident that material consumption – especially in the affluent parts of the world - needs to be
74 reduced in order to not further exceed planetary boundaries (6,19–21). In this context we suggest that
75 cultural phenomena such as KonMari decluttering may prove interesting when it comes to the potential for
76 reducing consumption, and that there is a need for empirical studies such as the one presented here to
77 explore this further. The practices of divestment, disposal and creation of waste and their connection to
78 consumption have been researched to an extent within the field of geography (22), but there is a research
79 gap when it comes to the relation between these practices and sustainable consumption and, more
80 specifically, to the impact such practices have on acquisition or the purchase of new things. The research on
81 different decluttering methods is still limited and the existing research on the KonMari method is rarely
82 based on empirical studies of practitioners but rather on theoretical analyses of Kondo's books and the Netflix
83 show (1,23). The empirical studies of KonMari practitioners (24) have primarily focused on the wellbeing
84 aspects of the method. We thus believe there is a contribution to be made in exploring the links between

sufficient consumption on the one hand and decluttering practices, specifically the KonMari method, on the other.

Aim and focus of the study

In this study, we follow the definition of Evans (25) (after Warde (26,27)) of consumption as a series of six 'moments' that occur during the performance of other practices. More specifically as 'acquisition', which refers to processes of exchange and access to goods and services, 'appropriation' and 'appreciation' which refer to the ways in which people incorporate these commodities into their daily lives, give meaning and derive pleasure from them, their counterparts 'devaluation' and 'divestment' which describe the loss of attachment, meaning or value and finally 'disposal' which is the counterpart to acquisition and the physical act of ridding (25). This understanding of consumption as a process involving different moments provides a frame of reference for our study of pracitioners of the KonMari method (henceforward called KonMariers or participants), as we aim to show how their experiences - centering primarily around divestment and disposal but also to a large extent around appreciation - might impact their interpretations of wellbeing and experience and view of consumption, specifically on the moment of acquisition.

In the context of overconsumption and planetary boundaries, we acknowledge that ecological values and political arguments may not be enough to change mainstream consumption practices, and that unintentional rather than voluntary entries to more sufficient consumption practices may be necessary (28). With this in mind, the aim of this empirical article is to ask if and in what ways the extensive, reflective and ritualised sorting and discarding of belongings that the KonMari method promotes might affect other practices and interpretations of consumption. Specifically, we explore the impact of the KonMari method on *acquisition* as one central 'moment' of consumption (25), and on people's interpretation of and relationship with the material goods they surround themselves with. We further ask if it has any effect on their wellbeing. Our study gathers interview and supporting survey data from practitioners of the KonMari method in two affluent European geographies, Sweden and the UK & Ireland, and discusses the findings accordingly. Before exploring the empirical findings however, we find it useful to briefly introduce some concepts of sufficient consumption, material interaction and wellbeing from relevant literatures, as well as some core tenets of Marie Kondo's method.

Sufficiency, sustainable consumption and wellbeing

In this article we understand sustainability as the need to stay within the planetary boundaries or in the 'safe operating space for humanity', as defined by Rockström et al (29), and likewise the concepts of sufficiency and circular economy as the most recent iterations of progressive paradigms in sustainability (30).

The growing literature on sufficiency (9,28,31–36) addresses the issue of limits: that ecological restraints necessitate absolute limits for the resource use of societies and individuals. The concept of sufficiency has for example been used to describe an organising principle or logic (32,37), a voluntary chosen lifestyle for lower environmental impact (9,38,39), and to frame concrete political suggestions for a more sustainable society (31,33). In terms of consumption, a focus on sufficiency thus highlights the need to reduce the *volume* of consumption, not only of material things but also of energy and resources, and, consequently, to address affluence as a source of overconsumption and of serious environmental impacts(40,41). Of course, this in turn means questioning the paradigm of continued economic growth that fuels and stabilises current linear economic systems and to a large extent relies upon this consumption (31,35,42). . .

The circular economy (CE) is a practical concept for the implementation of sustainability that has gained significant traction amongst business communities and governments in the last ten years, for instance being adopted as an action plan by the EU (43). Nevertheless, CE models (44) have not yet explained how

129 consumers will engage with and adopt new practices or business propositions despite the critical role of
130 these consumers in using and allocating resources (45–47). Likewise, the existence of sufficiency or
131 'reduction' is implicit in most definitions of CE, with various waste hierarchies or 'R' frameworks seen as a
132 core component and the suggested hierarchy of action usually pointing to a version of 'reduce' , 'refuse' or
133 'rethink' as the priority – but this is rarely explained and often neglected in favour of a focus on recycling or
134 economic prosperity (46). However, a sufficiency-based circular economy is emerging as a sustainability
135 paradigm which seeks to prioritise health and wellbeing over growth-based consumption through strategies
136 such as 'slowing and closing' material resource loops, and curbing end-user consumption whilst enabling
137 people to enjoy meaningful, healthy lives (30,46,48).
138 Although sustainable consumption literature acknowledges the importance of material objects in the
139 search for authenticity, pleasure or happiness (49,50), there is also research within this field which describes
140 voluntary, forced or inadvertent reductions in material consumption (e.g. eco-sufficiency, movements such as
141 asceticism, downshifting and non-materialism, and constrained consumption due to strained
142 finances)(9,49,51–55). Voluntary simplicity and anti-consumption for example represent differing
143 perspectives, with adherents of the former characterised by their pursuit of freedom, contentment and
144 prosperity through a more simple, less stressful lifestyle and of the latter by their explicit avoidance or
145 rejection of a brand or consumer practice for the sake of political or ethical arguments, or in the name of
146 personal fulfilment, self-expression or social belonging (54,56–58).
147 Most consumers are complex and make inconsistent, paradoxical choices. They are neither victims nor
148 sovereign choosers, hedonists nor rebels, symbolic communicators nor identity builders - but a combination
149 of all these and more (15). Their consumption and lifestyle patterns are shaped by diverse elements, often
150 performed as part of everyday routines rather than conscious ethical decision-making, and their activities
151 often belie the environmental, social or political values they profess (59–61). Most are unlikely to prioritise
152 sustainable actions in day to day life even though they have knowledge about environmental issues (60,61)
153 and 'green' consumer identities which conflict with core identities (such as 'mother' or 'employee') will
154 usually lose out (16,51).
155 In recent years the fields of sustainable consumption and the sociology of consumption have moved from
156 a preoccupation with identity and culture to embrace concepts of materiality, performance, infrastructure
157 and routine (25,27,62–64). Environmental impacts are contingent upon consumers' daily routines and
158 activities and consumption can happen as a result of involvement in many different practices, often shaped by
159 commercial interests such as design and marketing (25,26).A growing body of sustainable design and other
160 literature (emotionally durable design, positive design, slow design, design for product attachment, mindful
161 consumption, presencing etc) considers forms of reflection or mindfulness prompted by material interaction
162 to be critical in reorienting consumers towards sustainability through highlighting emotionally meaningful
163 relationships and recreating consumers as participants (65–67). Not only acquisition but also ridding or
164 divestment from objects and the practice of accumulation may be seen as evidence of the 'competent'
165 consumer, who is able to engage reflexively with the ways in which objects are used and not used (22). These
166 reflexive internal conversations and deliberations that people conduct in their heads can be seen as the very
167 thing that allows them to define projects and concerns and make their way through the world (68).The
168 relations between consumption and wellbeing are complex and tricky to navigate, and there is not space to
169 recount them in any detail here. Research has shown the negative association between materialism and
170 happiness (69,70), yet the 'double dividend' concept that reducing material consumption will inevitably help
171 both the environment and ourselves has also been debunked, as material goods are important mediators in
172 the negotiation of value and identity and the communication of social and personal meaning (59). Realising
173 sufficient, circular consumption may thus necessitate a reorientation of meaning (71) of the ways in which we
174 perceive material goods, experience consumption and satisfy human needs, rather than a moralistic criticism
175 of the goods or suppression of the needs themselves (34,72). People are engaged more effectively through
176 emotion, enjoyment and self-expression than through information, labels and measurements or sacrifice

177 (6,49,51,58), and considerations of the future consumer in a circular economy must take into account
178 intrinsic human requirements such as freedom, authenticity and quality of life. Soper's concept of 'alternative
179 hedonism' (73,74) for example highlights the pleasures to be gained from changing the way we think about
180 and perform consumption and suggests that the 'good life' can be seductive as well as virtuous; whilst
181 drawing attention to the negative sides of consumerist culture can remove its sheen, people must be able to
182 feel that alternatives are not only viable and available but also attractive.
183

184 **Studying the KonMari method**

185 At the centre of the KonMari method is Kondo's idea about the home being a place where people surround
186 themselves with the things they love, and nothing more. Clutter can be stressful, a mental as well as physical
187 burden, and the decluttering process is seen as a means of detoxification, reducing excess 'noise' in the house
188 and restoring balance, identifying values and supporting decision-making accordingly (10). Kondo stresses
189 the importance of going through every single item in one's home (in a certain order, by category), holding it
190 and reflecting on whether or not it 'sparks joy'. If not, it should be discarded. In her opinion, the question
191 about what people want to own is actually a question about how they want to live their lives, and 'putting
192 one's house in order' by engaging with feelings about one's home environment is also a tool for confronting
193 past choices, familiarising oneself with what feels good and even examining and changing one's self-
194 perception or inner state (10). In line with the Japanese Shinto tradition she also encourages people to treat
195 their belongings with care and respect, and express gratitude towards them before 'freeing' (getting rid of) or
196 putting them away (10). To discard everything that does not spark joy means, of course, to get rid of *a lot* of
197 things. According to Kondo, this is the secret behind the method: a thorough ridding and reorganisation of
198 items means that people never have to go through such a drastic process again, because they will reach a 'just
199 right' point surrounded by no more possessions than those that have meaning and bring joy. Their 'stock' of
200 belongings will decrease, she predicts, and they will hereafter buy only what they love and need (10).

201 **METHODOLOGY**

202 Qualitative research deals with the interpretation and transformation of the world and addresses the
203 meanings which people apply to situations or phenomena (75). Our study took a social constructivist
204 approach (75), using survey results to triangulate and complement the main interview findings in which
205 participants shared their phenomenological, lived experience (76) of the relationship between decluttering,
206 consumption and wellbeing.
207 Our research was conducted as a comparative study of KonMari practitioners ('KonMariers') in Sweden
208 and the UK & Republic of Ireland. Participants were found via the KonMari UK and Ireland and KonMari
209 Sweden Facebook groups, and surveys were conducted in January 2018 (Sweden) and October 2018 (UK &
210 Ireland), when the total membership of the groups was around 11,000 (Sweden) and 19,000 (UK & Ireland).
211 A total of 318 (Sweden) and 314 (UK & Ireland) responses were received, following which the survey was
212 closed. The surveys elicited socioeconomic information about the participants, their motivations for starting
213 KonMari and their experiences of the process - with particular focus on their feelings and behaviours with
214 regards to current belongings and the consuming of new things both before and after practising KonMari. The
215 two surveys were identical apart from three additional questions in the UK & Ireland survey which were
216 added after the Swedish survey had identified a need to address possible rebound effects of the method(77).
217 Following the surveys, we conducted qualitative and semi-structured interviews (45-60 minutes) with
218 willing participants (11 in Sweden, both online and in person, and 12 in the UK, all online or over the phone)
219 and completed these by December 2018. No survey participants from the Republic of Ireland put themselves
220 forward for the interviews, so these came solely from Sweden and the UK. In the interviews we also focused

on the experiences of participants with regards to consumption before and after the KonMari process, going into more depth about changing interpretations or feelings towards material goods, both in terms of current possessions or living environments and of shopping for new items. We also asked more about the motivation that people had for embarking on their KonMari process, the reactions of friends and family and what it meant to them. The interviews were recorded and transcribed and the material was then analysed, coded (both emic and etic codes were used) and triangulated using a combination of Nvivo software and manual approaches. Attention was paid to the validity of data, interpretation and evaluation (78) with comparable findings from two Northern European countries serving to increase internal generalisability and the likelihood of similar findings amongst KonMari practitioners in other affluent Western geographies (78).

Participants in both the surveys and interviews were 'self-selected', choosing to answer call-outs in the respective Facebook groups. We acknowledge that this comes with a bias in favour of individuals who are likely to be more engaged and motivated by the KonMari method than others – in the first instance to join the group, and in the second to answer our call-outs.– and that this in turn is likely to affect the results of the study. Since our research focuses on the relationship between decluttering and consumption and the transformative experiences of those who have participated in the KonMari process however (rather than the success or otherwise of the method itself), we suggest this can be an advantage and argue that it is more useful to study enthusiastic participants of this community rather than an average sample of people who may have read about it but not put it into practice, or people that may have embarked on the process but not followed through.

The KonMariers

The interview participants were all female and between 17 and 55 years old in both countries. The majority were in the age span 36-44 years, both in the UK and Sweden. This is reflected in the larger group of survey respondents, where 98.5% overall identified as women and most were in the age span 36-44 years (31% in Sweden and 42% in the UK), followed by the group 45-54 years (30% in Sweden and 23% in the UK). Most lived in or close to large towns or cities. Of those who answered the survey, most respondents lived together with partner and kids (51 % in Sweden and 74% in the UK). 21% in Sweden and 12% in the UK lived with a partner, 11% in Sweden and 6% in the UK lived in single households and 15% in Sweden and 8% in the UK lived as single parents with children. A majority of respondents reported having higher education (75% in Sweden, 85% in the UK). With regards to the socioeconomic situation of the KonMariers, the majority of those responding to the Swedish survey - 76% - agreed with the statement that they have a stable financial situation, and 21% with the statement that they earn more than most people. The numbers in the UK & Ireland survey were 70% and 13% respectively. Conversely, 18% of the survey respondents in Sweden and 20% of those in the UK reported having a strained financial situation.

EXPERIENCES OF KONMARIERS IN SWEDEN AND THE UK

Although the surveys were conducted first in order to scope out the research and provide a basis to build from and refer to, the interview data was most detailed and formed the main thrust of our study. As previously stated, our aim is to explore the impact of the KonMari process on people's experience of consumption (specifically acquisition) and wellbeing. Attempting to reflect the transformation processes that our interviewees described, we begin with the KonMariers' motivations for starting the process and progress to their experiences of the method itself. This is followed by a specific section which focuses on results relating to perceptions of wellbeing and consumption behaviour. Supporting survey data was statistical rather than descriptive, focusing on reported changes in attitudes towards shopping and material possessions, and we have integrated the most relevant findings into the final section accordingly. All participant names have been changed.

1. ‘Something has to change’: the start of the KonMari process

The reasons behind starting with the KonMari method were various; however, a few motivations stood out as most common both in the survey and in the interviews. One trigger frequently mentioned by interview participants was a discontent with their homes in one or several ways: it could be that it was too cluttered, that they felt that they did not have enough space, or that it was just too difficult to keep the home tidy or that ‘something had to change’ (Jelena, UK). Related to this was the experience of simply having too much stuff, often combined with a sense of feeling overwhelmed, of not having control over their things, and/or a frustration stemming from a feeling of not having enough, or not having the *right* things, even though they may have owned an abundance of things; according to Lena (Sweden):

> I think it started with frustration. This feeling of… ‘I have nothing to wear!’ And I have a walk-in closet, so there’s quite a lot of clothes there (and there used to be more). So to stand there and have that many clothes and still never have anything one feels good in or that fits well… that’s not fun.

In the UK one woman, Maisie, who lived in a small city flat had ‘reached the point where it was like Jenga to put stuff away in the cupboards’, whilst another, Ellie, had been used to buying things and ‘shoehorning’ them in but was feeling that there were ‘so many toys and so many little clothes and so many people in the house that it was just getting on top of me’. Another motivation of the participants was simply a wish to facilitate everyday life, in a couple of cases specifically in order to combat depression, and an interest in trying out various methods that could be of help in tidying and organising the home.

In addition to the motivations of physical and emotional ‘stuff overwhelm’ in their own homes around one third of participants noted significant life events or external triggers as prompting the KonMari process, for instance moving house, inheriting an estate, losing a job, the arrival of a child or an illness in the family. To carry on with KonMari then became a way of dealing with the ‘chaos’ occurring elsewhere in their lives. One final important point to note about those starting the KonMari process, whether they had come across it through a magazine article, reading the book or recommendation by a friend, was that it had often ‘resonated’ with them: as Jo (UK) put it, ‘you've got to be in that headspace, in that position where you are searching for something - you've got to recognize that you need something…’

2. The KonMari process

What sparks joy? Ritualised reflection, appreciation and divestment

Marie Kondo instructs participants of the method to collect all of the items from a particular category (clothes, books, papers, miscellaneous and belongings of sentimental value) in one place and then to hold each thing and ask themselves whether it ‘sparks joy’ for them. If it does they can keep it, but if not, they should ritually ‘thank’ the object for its service before they get rid of it. This embodied and somewhat animistic ritual process stems from the Japanese Shinto tradition which has influenced Marie Kondo’s thinking and the development of her method, and seems to have the effect of reconnecting people with how they feel about the material objects in their homes, and to prompt a process of reflection which carries through to other areas of life. Kathy (UK) said:

> When I first heard about it I was like ‘well, I won't do that’... but as soon as you start doing it, there's a lot of stuff that actually once you hold it in your hand you're like 'oh actually no, I don't like this’ - and until you try it you don’t realise it would feel that way.. until you do it you don't realize that actually, this does work.

309 Zara (UK) hated the idea of waste and its associated impacts, and so 'to sort of treat it like it has a soul
310 somehow made it more meaningful'. For many, this ritualised method of touching each individual item and
311 reflexively considering their own emotions in relation to it seemed to be helpful in facilitating a more intuitive
312 knowledge of what the interview participants really loved or valued. Maylin (Sweden) saw it as an advantage
313 of the KonMari method that 'you really sit down and *feel*, and that is a matter of practice, to really practice
314 your ability to feel', and claimed that it gets easier with time because you get used to it. This seemed to be the
315 case for most participants: the more they practised, the more ingrained and intuitive the process became.
316 Several suggested that it had a lasting impact such that previous habits were shifted and future activity just
317 involved 'keeping on top of' the new status quo. Some participants also noted a change in their appreciation
318 for things they already owned, being more grateful for the possessions they chose to keep and even proudly
319 taking photos of their beautiful drawers or cupboards to show other people the transformation. Linda (UK)
320 said:
321
322 I think I've taken on board a lot about really caring about the things that you have chosen to keep. So
323 really appreciating what I do have and enjoying it more I suppose... it's like you are not wearing stuff
324 that feels rubbish just because you've got it, but actually just having things that make you feel good.
325
326 A minority of interviewees nevertheless found the idea of ritually acknowledging or thanking their
327 belongings before they got rid of them culturally strange or amusing; some eventually got used to it, whilst
328 others decided to bypass this activity. The phrase 'spark joy' also seemed to polarise certain people, especially
329 in the UK. Around a quarter found it problematic and reinterpreted or translated it into more comfortable
330 language, for instance asking themselves instead how they *felt* about something, whether they really loved it
331 (one person actually likened it to the feeling of falling in love), or it made them happy. A couple only found the
332 phrase difficult at first, but once they had tried the process decided that it was indeed the right phrase to use:
333 'the word spark makes me think that everything you own has to cause some kind of a feeling', said Aisling
334 (UK). For others, it represented a simple and impactful way of deciding on the belongings they wanted to
335 surround themselves with, cutting out any rational deliberations of whether something might be useful or
336 not. The Swedish KonMari Facebook group chose to use the expression that something 'glitters' (*glittrar*) as a
337 translation of 'spark joy'. This term was not appreciated by all the interviewed participants however, who
338 instead chose to use the English 'spark joy', or to say that something is 'tokimeku', which is the original
339 expression in Japanese.
340 As mentioned, the reflection process did not stop at the relation with people's belongings, but rather
341 expanded into other areas of the informants' lives such as economy, activities and relationships. One Swedish
342 woman elaborated on this:
343
344 I think you can apply the thought of trying to find what brings you joy not only when it comes to
345 material things but more generally in life. I have moved on to decluttering my calendar and
346 prioritizing things. I did that before as well, but perhaps more now, and I am conscious about finding
347 the small things of joy. […] So that is a positive effect. And the second thing is that... because there is
348 so much focus on what it is that 'glitters', or is *tokimeku*[1], it also means that that which doesn't glitter
349 is… dirtying. So I have, like… had less patience for crap. (Maylin, Sweden)
350
351 The KonMari journey was of course personal and different for every interviewee, but the theme of home
352 organisation or decluttering carrying through to other areas of life was a common one. Moreover, several of

[1] *Tokimeku* is the Japanese term used by Marie Kondo (2014) to describe the feeling that in English is translated to "sparking joy". That something "glitters" in Swedish is the expression used by Swedish KonMariers to describe the same feeling.

353 the interviewees commented on the KonMari method being different to other decluttering or minimalist
354 techniques, in that the focus is not so much on ridding or throwing things away but on identifying and being
355 intentional about what it is they wanted to keep. The process seemed to represent a shift in the way
356 participants perceived their stuff, moving from collecting things as it were to 'cover all bases', 'just in case',
357 towards surrounding themselves only with things that made them feel good - and simultaneously discovering
358 that objects that represented social or cultural norms might not in fact be what they really wanted. 'It
359 means… having a clear space and making sure I own my things, you know...I don't want my things to own me!'
360 said Jelena (UK). According to Ellie (UK), 'it's not a decluttering process at all in fact...it's a process of
361 discovery...of what brings you joy - it goes beyond physical objects.'

362 *Disposal: implications and environmental concerns*

363 The process of going through one's belongings and deciding to discard a great deal of them was also
364 described, particularly by Swedish participants, as difficult and at times painful. Not only could the sheer
365 amount of stuff that had to be dealt with seem almost impossible, but the process also implied confrontation
366 with many unnecessary purchases (and related costs) from the past as well as with hopes and dreams that
367 were once attached to certain belongings; parting from objects with particular memories attached could feel
368 like parting from the memory itself. In this sense, the KonMari process can be seen as one of simultaneously
369 confronting one's belongings and learning to let go of them, a process that seemed to become easier with time
370 as the KonMariers gradually improved their sense of what sparked joy for them. As Sophie (UK) put it, she
371 honed her 'joydar' through the process and noticed that over time this sense become more acute.
372 Although one or two people were already trying to consume more 'sustainably', none of the interviewees
373 embarked on the KonMari method for environmental reasons. Nevertheless, several felt that a 'byproduct' of
374 the process of sorting and decluttering their homes was to make them more conscious of the social and
375 environmental impacts of consumption. As Ellie (UK) said:
376

> 377 Once we've bought something, well where is it going to end up? You know… it's either going to be
> 378 recycled or it's going to rot or it's going to sit in landfill and our oceans. And that's not something I
> 379 would have thought about before, because I thought 'well I'm buying something, I'm going to use it
> 380 and that's ok' - but now I'm like 'do I want this plastic toy', because this plastic is going to be on the
> 381 planet for however long and I'm going to be responsible for that... because I've bought it.

382 Most of the participants felt guilty about the waste they were generating especially during the initial phase
383 of decluttering, and a couple were upset that Marie Kondo had not talked more about how to dispose of
384 unwanted stuff responsibly in her book. On the contrary, she emphasises the volume of discarded belongings
385 of her clients as a sign of the method's efficiency, proudly highlighting in her book from 2014 that clients had
386 discarded 28,000 bags or more than one million items to date (10). Considering the success of her book and
387 the Netflix series, these numbers can be expected to have multiplied several fold, and the environmental
388 impact of this tidying method has been brought to attention elsewhere (79).
389 However, this sense of wastefulness was partially mitigated by the participants feeling that they were
390 donating to good causes through charity shops or aiming to recycle as much as possible and, further, by the
391 fact that they had significantly reduced their consumption after going through the KonMari process. Susanne
392 (Sweden) pointed out that one might feel ashamed of all the bags of stuff that are thrown out or given away,
393 but for her this was partly compensated for by looking at what her family had purchased during the two years
394 after having finished with the KonMari process, a total of which she estimated would fit in two paper bags.
395 She said that discarding all that stuff felt shameful at the time, but commented that 'afterwards you can think
396 that you will never do that again. You will never again make these wrong decisions about what to buy'.

397 **3. ‘It’s not just about decluttering’: reported wellbeing effects of the KonMari process**

398 One experience that most KonMariers in both geographies seemed to have in common was a new sense of
399 ease or harmony in relation to their homes, with interview participants viewing the method as more than
400 decluttering, often describing how it had changed their life beyond enabling a tidier home.

401 *A calm and tidy home; easy routines*

402 There was a common enthusiasm about the newfound ease or efficiency in cleaning and tidying their
403 homes once people had got rid of superfluous stuff. Lena (Sweden) had measured that the time she and her
404 husband dedicated to cleaning (including to put things away in order to enable the cleaning) had been
405 reduced from five hours to one and a half hours per week. Most participants were also delighted with the
406 calm or peaceful environment they had created, for instance noting pride in a linen cupboard - ‘it was an
407 absolute joy after I'd done it, a real absolute joy!’ (Diana, UK) or in having a house that was ready for visitors.
408 According to Aisling (UK),
409
410 I used to think that tidying was having everything organised, but now I've realised that it's not about
411 being tidy and organised, it's about having only the things that you want or love or need -so I have far
412 less things and it just means that I can do my daily routine really easily… everything is to hand, if I go to
413 the bathroom it's just my cleanser, ready to go, and my toothbrush -there's not a whole pile of different
414 cleansers to choose from and different moisturisers and samples of things, it's just what I use and what I
415 know that I love, so it's definitely shortened my time with things…

416 *Mental health*

417 It was striking that several of the interview participants were vocal about the beneficial effect of the
418 KonMari method on their mental health, noting how it had helped to relieve their anxiety or boost their
419 confidence or otherwise had a positive effect on their wellbeing, describing it in words similar to ‘tidy house,
420 tidy mind’ and commenting on the tangible feelings of achievement - even in just filling a bin bag with paper.
421 Removing visual clutter seemed to enable people to be more mindful and to focus on what was really
422 important for them. One Swedish participant who had been suffering with burnout and fatigue felt that it
423 provided a manageable and practical project to take on as part of her rehabilitation:
424
425 It was very hands-on… now I can *see* what I’ve done. So that has been really helpful for me. To move
426 forward and train myself in this feeling of what it is that is positive and that is good and what I want
427 and need. Because that is what a lot of the rehabilitation is about - to find that which makes you feel
428 good.... I think that if you just start with the things and stuff you have at home, then that mindset
429 comes to you also in other areas (Jessica, Sweden).
430
431 A sufferer of depression in the UK, Sophie also found that removing excess stuff from her life allowed her
432 headspace to focus on other things; she tied this in with the wider ‘self-love’ movement (‘drinking almond
433 milk and doing yoga’) and reflected that it was more ‘acceptable’ than it used to be to take care of oneself and
434 one’s environment.

435 *More control, more freedom*

436 Feelings of increased control or routine at the same time as increased autonomy to focus on what was
437 really important to them were also common among participants. For instance, having fewer things meant that
438 fewer choices had to be made and resulted in reduced stress levels or feeling ‘lighter’. For Diana (UK), the
439 method helped her ‘to create some sort of order when there were lots of things happening that I couldn't

440 control…' and to get rid of stuff that was dragging her down without feeling guilty about it. The increased
441 control was further mentioned in relation to finances, where several informants had extended their KonMari
442 process to include 'discarding' of unnecessary expenses and thus gaining control of how they spent their
443 money.
444 Sophie (UK) declared that 'if you're prepared to put in the time and invest in it, actually it's a really
445 empowering process... it's almost like taking control of your life again and taking control of the things in your
446 life in order to be able to kind of free yourself'. This feeling of freedom was frequently mentioned by
447 participants, who had not only 'KonMaried' their belongings but also their work schedule or other areas of
448 their lives, getting rid of obligations or jobs that were no longer bringing them joy. The experience of
449 liberation or relief among the KonMariers seemed to increase as more and more things were discarded. It
450 was not always expressed in terms of freedom but sometimes rather as a sense of harmony, as expressed by
451 Julia (Sweden): '[S]omeone said that to come home should feel like an exhalation. And the more I have
452 discarded, the more I have felt somehow that the ceiling has kind of lifted, that there is a better possibility to
453 breathe… Something has eased'.
454 A few who had been brought up by parents with experience of wartime or rationing also mentioned being
455 liberated from their 'scarcity mentality' which had led them to stockpile items and fill their cupboards with
456 things 'just in case' they were needed at some point in the future. Others felt that they had been freed from
457 obligations which were not making them happy - like keeping things which they had inherited or been given
458 or were part of a set or only buying useful, sensible furniture; likewise, many mentioned having been freed
459 from the guilt of throwing things away which 'might come in useful' at some unspecified future moment.
460 Dealing with their stuff, it seemed, led them to deal with other life priorities.

461 *More time and money*

462 Participants also noticed that they had saved time on shopping or cleaning activities, which they were able
463 to spend either with their families or on personal interests. A few noticed that they were able to save money
464 or pay off debts by getting not only their home but their finances in order - though this was certainly not
465 universal. In general however there was a shift towards valuing experiences rather than stuff, and a couple
466 even claimed to have made more dramatic changes such as leaving a job or pursuing a new career. According
467 to Ellie (UK), 'KonMari made me realise it's not just about your things and your living space, it's about your
468 time as well - spending your time better - and I was basically just working all the time.' Elisabeth (Sweden)
469 commented that she had thought a lot about how we often consider whether or not we can *afford* something,
470 'but', she said, 'we very seldom ask ourselves the question 'do I have *time* to own this?', and I think we need to
471 ask that much more often than we do'.

472 *'Life changing'*

473 A surprising number of interviewees supported the seemingly hyperbolic claim made in the title of the
474 original KonMari book about the method being 'life changing', enabling them to address and change situations
475 (jobs or relationships as well as homes) that are no longer making them happy: 'I know the title Life Changing
476 Magic of Tidying Up is a bit far-fetched, especially for the English, but I really truly believe it has been life
477 changing. And so I don't think it's a far-fetched title, but I do think it puts people off' (Jo, UK). Not all
478 participants took this view however, and a few remarked that KonMari had *not* been life-changing for them,
479 even though they had benefited from the process.

4. 'It's ruined shopping for me': changes in approach to consumption

Shopping habits

One finding that stood out in both the interviews and in the survey was that people changed their shopping habits and reduced their acquisitions, often quite drastically, following the KonMari experience. One Swedish interviewee described how she had previously bought books and clothes on impulse, but now found it almost impossible to buy anything, even when she actively tried to:

> I can't anymore, it's completely impossible. You don't find what you want – specifically because you try to *feel*. It's this concept of *tokimeku* – if it sparks joy or not… and most things don't. And then it's impossible to buy it. It's like some kind of barrier you have, it's really strange (Marianne, Sweden).

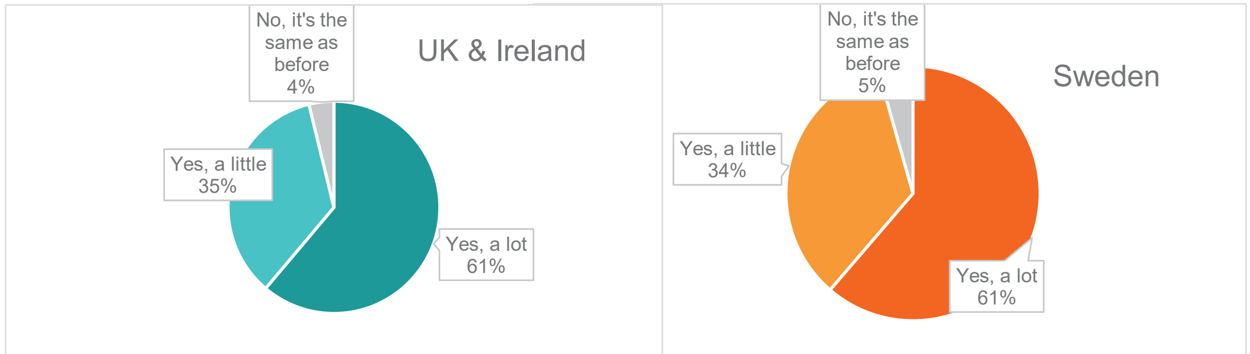
Most of the interviewees confirmed that they had become less impulsive and more 'fussy' or discerning with the things they bought, even if they walked past tempting shops every day, and that the practice of asking themselves whether something 'sparked joy' had carried through from a home to a shopping context.

> I think differently and my whole attitude towards things and shopping has changed…it's ruined shopping for me, I can't go shopping really anymore... now I'll look at things and say 'oh it's really nice', and before I'd have bought it but now I'm like 'well where am I going to put it and do I really love it, and does it spark more joy than the other objects that have been in that place already?' (Ellie, UK)

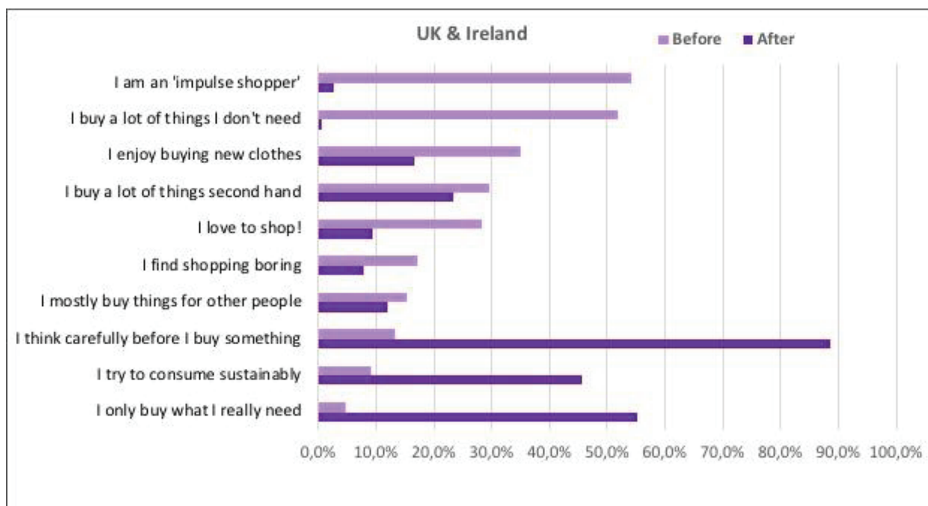
Some participants noted that they had saved money as a result of this changed perspective on shopping, but also that rather than focusing on the cost, utility and whether they could afford a new item at the time of purchase, they rather considered how they felt about it or whether it would feel good in their house. One woman started turning down freebies after realising that these were actually never things that brought her joy or she really wanted, and another found that she would put things in her shopping basket but then end up putting them back on the shelves after doing a 'joy check'. A third woman who had previously felt obliged to follow fashion trends discovered that many of her purchases were not joy-based and so reduced them significantly. A couple more realised after going through the KonMari process that many of the things which they would previously have bought they actually already had stashed in their cupboards. On the other hand, one interviewee (Jelena, UK), conversely started spending *more* money on better quality things after going through KonMari, as she was more sure of what she wanted and less paralysed by uncertainty and her frugal upbringing. In general, there was a consensus amongst interviewees that they were happy with their new home environments and actually no longer *wanted* to buy stuff, rather than feeling that they *shouldn't* because of ecological or ethical reasons. With the increased appreciation of their home environment and awareness of the stuff around them they felt less likely to 'bounce back' to their previous shopping habits and most interviewees reported already having maintained these changes for one or two years, with all reporting feeling that this was a lasting shift for them. Of course, for those that had saved money there was the potential for rebound purchases, but although the UK interviewees were asked specifically about this and several Swedes referred to it, only two confirmed that they had put this money towards extra travel and in particular long-distance flights. The great majority of the interviewees did not seem inclined to use the extra money for activities and/or consumption with high environmental impact, but rather to dedicate it to savings or localised activities with their families and friends.

The surveys supported the findings of the interviews with regards to consumption behaviour, and findings from the UK & Ireland and Sweden showed remarkably similar results particularly when it came to the impact of KonMari on participants' attitude towards acquisition. 95.6% of the participants in the Swedish

526 survey and 96.1% in the UK & Ireland survey stated that KonMari had changed their attitude towards buying
527 new things (see Figures 1 and 2).
528



529
530 **Figures 1 (UK & Ireland) and 2 (Sweden).** Survey answers to the question 'Has your attitude towards
531 buying new things changed after you started KonMari?'
532
533 Respondents of the survey were asked to choose which statements best described their consumption
534 habits before and after KonMari, by selecting up to three statements out of ten. Once again results were very
535 similar in the Swedish and UK & Ireland surveys, with around 50% of the participants in both agreeing with
536 the statement 'I shop on impulse' before KonMari, and this figure being reduced to 2% in both surveys after
537 the KonMari process (see Figures 3 and 4). Instead, the statements best reflecting the consumption habits of
538 respondents after having conducted KonMari were 'I think carefully before I buy anything' and 'I only buy
539 what I really need' (Figure 3 and 4), suggesting that most of the participants had become more discerning
540 about what they bought, reflecting on whether it was something that they really needed or wanted.
541



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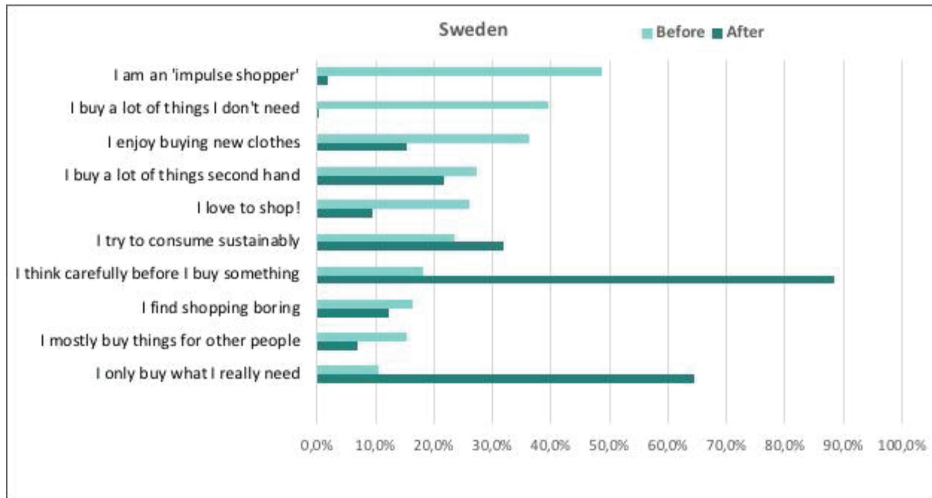

545
546
547 **Figures 3 (UK and Ireland) and 4 (Sweden).** The KonMariers' responses to survey questions comparing
548 their consumption habits before and after they started with KonMari. The responses are sorted by answer
549 frequency in the 'before' category.

550 Mentioned in free text answers in the surveys as well as frequently recurring in the interviews, this
551 altered consumption behaviour seemed to be directly linked to an increased ability among the participants to
552 feel and decide what it is that 'sparks joy' for them - whether current belongings or prospective purchases -
553 and what does not.

554 *Shopping for others*

555 A common theme amongst interviewees was how their new perspective on shopping had spilled over to also
556 affect their attitude with regards to giving and receiving gifts. In general, they found themselves reluctant to
557 buy things that were not explicitly desired as they wanted to 'spark joy' rather than contributing to clutter in
558 other people's homes, and this made shopping for other people much more challenging. As Linda (UK)
559 reported:
560
561 I try and buy other people experience gifts rather than stuff gifts. Because I think 'well I don't just
562 want to give them more clutter, I don't want it in my house so I don't want to give it to other people
563 either.' But it's hard for other people I think - you know, they're a bit like 'Oh no you want presents to
564 open don't you!'
565
566 Particularly in Sweden, interviewees were now much more concerned about giving gifts that they were
567 sure the receiver wished for, or preferred to give money instead (especially to teenagers). Furthermore,
568 around half of the participants in both countries reported a more skeptical attitude towards receiving gifts
569 and described how they did not appreciate getting things they had not asked for:
570
571 ...a very big change that I feel inside, is that I don't like to receive presents anymore. I guess I
572 wasn't an extreme 'gift person' before either, but when I had my birthday recently I just felt like

> 'no no NO, what if someone comes and gives me books!'. I *don't* like to get books. And I guess I never really have liked it, but somehow I felt it very strongly now. (Karoline, Sweden)

This made it particularly hard at Christmas when there is a strong cultural obligation to give and receive gifts, and some people reported that their friends or families found it very difficult to comprehend the idea of not giving them something. Around one third of UK interviewees for instance reported that their immediate friends, partner or children eventually came round to the concept and process of KonMari and even started to do it themselves, but that parents or older relatives who were part of a generation that experienced scarcity and sometimes war in the past were puzzled and even offended by the decluttering method. Nevertheless, it was striking that several people had managed to influence the attitudes and activities of close family or friends in particular with their KonMari practice and new, more considered perspective on material objects.

DISCUSSION

As a method of decluttering, KonMari seems to exemplify an emergent consciousness about the implications of consumption in so-called developed economies, and a trend for reducing 'stuff' or 'clutter' in favour of increased time or personal wellbeing which we see played out through movements such as minimalism or self-care on social media. Although in this study we relied on self-reported data rather than observational or ethnographic research, the narratives that we collected from committed KonMari practitioners through the interviews and supporting surveys told a story of people who had changed their approach towards material possessions in a fairly radical way (e.g. impulse buying reduced from 45-55% to less than 3% in both countries and more than 60% reported that their attitude to buying new things had changed 'a lot'). Potentially this could have far-reaching implications for the problems of overconsumption and affluence in developed economies, if consumers were to shift their focus and the meaning of wellbeing from material acquisition to other activities more compatible with a sufficient circular economy.

Other than its global popularity, we have not found any evidence to show that the KonMari method is more effective than other decluttering methods in terms of creating a clear home (indeed this was not the purpose of the study), but its focus on what brings people joy or happiness and what they want to keep in their home contrasts with other methods which focus on what they want to get rid of. We received specific comments from interviewees who had tried other methods (e.g. 'Swedish Death Cleaning', the 'Flying Lady Method' or the 'One Method') and found this to be a small but significant shift in focus that turned their attention away from difficult feelings of guilt or loss aversion and towards positive feelings associated with meaningful possession. This shift in focus and feeling away from guilt or loss and towards enjoyment reflects the contrast between KonMariers who have then reduced their shopping, and voluntary simplifiers or other 'sufficient' consumers who might reduce their acquisition for reasons of sustainability or ethics. Rather than wanting to stop shopping, a majority of the KonMariers we spoke to had stopped wanting to shop so much, a finding which was supported by the survey results. Of course, a major consideration is whether these participants' new perspective translated into behaviour that would last, or was a temporary trend and they would relapse to their previous position. Although most reported that this was a lasting shift that they had maintained for one or two years, a definitive conclusion would of course necessitate a longitudinal study over several more years including the gathering of detailed quantitative data about the participants' shopping (in financial value and number of items) before, during, and after their KonMari process (see Limitations, below).

In terms of the moments of consumption, the KonMari process occurs during the central phases of ownership and use, working to either accelerate devaluation and divestment and hence disposal or to reinforce appreciation and appropriation, thus delaying disposal of some belongings. Moreover, as shown above, the method has clearly affected the moment of acquisition: the KonMariers report having reduced their shopping, both in terms of the 'number of moments of acquisition' (i.e. time dedicated to consumption) and in terms of the volume of new purchases. In creating and becoming more aware of the kind of home or

619 lifestyle they wanted, the KonMariers seemingly reduced the moments of acquisition associated with things
620 they did *not* want.
621 Although most participants suggested that they tried to ensure their unwanted items were recycled or
622 reused, obviously a certain amount still end in landfill or incineration – an undesirable outcome from the
623 perspective of a circular economy, and which the concept of sufficiency ultimately aims to avoid. Of course a
624 study such as this cannot guarantee that the initial wastefulness of decluttering is offset by more sufficient
625 behaviours later on in terms of reduced acquisitions and material use. We even came across a small minority
626 of participants who, freed from previous feelings of guilt about throwing things away, felt able to spend more
627 money on quality things they really liked, and although they reported reduced quantity of purchases there
628 can be no guarantees that this equates to reduced environmental impacts. In terms of slowing material flows
629 it could even be argued that storing unwanted objects in the home at least takes up space that cannot be filled
630 by new items, and that an attitude of frugality (as opposed to decluttering) is fundamental for facilitating the
631 kind of slower consumption necessitated by planetary boundaries and resource limitations. Nevertheless, our
632 findings appear to support a new perspective or changed relationship between participants and their
633 material belongings after performing KonMari, such that the vast majority of those who have created more
634 meaningful or desirable homes and lifestyles report being significantly less likely to acquire new things in the
635 same degree afterwards. The value of having more stuff is apparently overtaken by the value in having a calm,
636 ordered or convenient home environment (i.e. the value in *not* having stuff), with more time and money for
637 family, friends and hobbies. This being the case, we must nevertheless beware the dangers of rebound (77),
638 and that reducing expenditure on material acquisitions can make money available for more environmentally
639 damaging purchases such as cars or flight travels.
640 Although the prompt for embarking on the KonMari method is often an external trigger (whether ill
641 health, house move or build-up of clutter), the material interaction that the process necessitates is a form of
642 ritualised reflection that facilitated greater reflexivity amongst our participants, and seemed to prefigure a
643 new interpretation of material objects and environments. As a decluttering *project* (80), KonMari integrates
644 and reproduces familiar practices such as sorting, tidying, organising and clearing in a new way, in the course
645 of which meanings can be shifted and links with other consumption-related projects or practices can also be
646 transformed (64). The ritualised method of touching or holding things to decide whether they 'spark joy'
647 comprises a more reflexive approach to decluttering activities, reinforcing appreciation of the objects
648 themselves and the tidier, calmer home environment and more intentional lifestyle. Through the KonMari
649 process consumption can once again become a 'site of creativity and resistance' (25) where KonMariers learn
650 to appreciate their belongings more (sometimes start using them again in new ways) and resist shopping
651 impulses that go against their 'joydar' - a transformation which was aptly illustrated by the woman who put
652 back things she had habitually collected in her shopping basket when she realised they did not have the
653 'spark'. This ties in to the focus within sufficiency literature on the necessity to renegotiate the ways in which
654 needs are satisfied and material consumption is given meaning (34,72).
655 Given that most consumers do not prioritise sustainable actions (60,61), our studies suggest that the
656 KonMari method may have an important role to play in slowing and reducing consumption, as it can serve as
657 a sort of unintentional entry into sufficiency-oriented consumption practices (28), particularly for those
658 consumers that are motivated to act to improve their wellbeing or home life. Personal interests or benefits
659 such as these are easier to comprehend and more likely to be acted on than altruistic (e.g. voluntary
660 simplicity) activities (16), which have sustainability-related outcomes that may be far off in time or space.
661 Attention to the ritual or practice of decluttering it seems can be transferred to the practice of shopping, and
662 rather than *wanting to stop* consuming KonMariers seem to *stop wanting* to consume because, for instance,
663 they start to perceive unloved material objects as clutter that can also create a psychological burden, rather
664 than evidence of wealth or success. The meaning of these objects changes, they become - as Khamis pointed
665 out - superfluous to or even in conflict with a new sense of self (1). As the KonMariers become more reluctant
666 to buy things that do not spark joy to them, the method works to slow down the sheer pace and reduce the

volume of consumption of new things, and consequently slow the flow of material resources through the system (48). We might also assume that the parallel process of the KonMariers strengthening their appreciation of their belongings that *do* spark joy to them further feeds into the slowing down of consumption by delaying the disposal and thereby prolonging the lifetime of those belongings. Of course the KonMari method will not appeal to everyone, but we suggest that this 'unintentional' slowing of consumption may have significant implications for the spread of sufficiency approaches among consumers as part of a circular economy, and, further, for drawing attention to the potential association between wellbeing and reduced consumption. This may in turn provide insights for designers, policymakers and some businesses as to how 'mainstream' consumers can be engaged with new practices and perspectives by shifting the meanings of material goods and appealing to elements of wellbeing.

Limitations and further research

Certain limitations must be acknowledged, first and foremost that our study was based on self-reported claims, which reflected our exploration of participants' interpretations of the decluttering process and of their physical environments before and after. Further, considering that the surveys were performed by the participants *after* having started or completed their KonMari process, the survey results about consumption behaviour before starting with KonMari may suffer from retrospective bias.

As previously mentioned, in the traditions of qualitative work (78) our study is not generalisable to wider populations but rather represents a detailed analysis of small groups of fairly dedicated KonMari practitioners in the affluent geographies of Sweden and the UK. The strikingly similar survey results and interview findings in each country nevertheless suggest that these may be common to practitioners in comparable cultural contexts too, such as other Northern European or North American regions. We acknowledge that despite its reach and popularity, the KonMari phenomenon may represent a passing trend, and of course is limited in its uptake and practice. Perhaps unsurprisingly, all interviewees and around 99% of survey participants in both regions were female, which also reflects the distribution of gender in the Facebook groups where the surveys were posted. We speculate that this might be due to the historically gendered nature of domestic activities and of consumption as characterised by the various moments, from acquisition to disposal. In her books, Marie Kondo also clearly directs herself almost exclusively to women and her brand plays into a more traditionally female narrative, something that is likely to represent a gender-based barrier for those who identify with roles that are traditionally male. Likewise, certain linguistic and ritualistic tropes were seen by some respondents as culturally strange or distasteful, and these may also have distanced those who might otherwise have participated.

With these issues in mind, we suggest that further research should explore the gendered nature of decluttering with particular relation to acquisition or shopping, as well as the influence of other related practices such as gift giving, of cultural mores or meanings and of feelings or emotions on the various phases of consumption. The different channels, media and language through which people come to learn about the method also merits more in-depth analysis, as do the various prompts which seem to trigger adoption; for instance, do people need to experience particular feelings of overwhelm or some kind of crisis as well as being influenced by media or culture in order to take up decluttering? Furthermore, if the disruption of decluttering means that people are more open to other changes in their lifestyle approach, does this perhaps warrant further discussions of the 'spillover' effect in sustainable consumption research?

In the context of a growing environmental crisis and need for sufficiency, future research could also explore the relation between decluttering practices and possible increased interest in the implications of overconsumption, as demonstrated by some of our interviewees. Related to this, in order to verify to what extent material acquisitions were in fact reduced and whether this represented an example of sufficiency, it would be valuable to control the self-reported reduced consumption of the informants in these studies with quantitative studies and ethnographic observations of KonMariers' actual consumption before and after

having started with the method, including controlling for the ecological footprints of their purchases, and as mentioned to conduct a longitudinal study over five or even ten years. This would give some idea of the potential percentage for consumption reduction amongst KonMari groups and also help check for possible rebound effects of decluttering with regard to other practices such as increased holiday spending. Lastly, it would be interesting to study KonMari participants in the context of brand communities (81), and the extent to which participants' decluttering practices and reduction in consumption are related to their involvement in the Facebook, social media or other KonMari communities.

CONCLUSION

This article has taken a cross-disciplinary approach to explore the need for greater focus on the role and wellbeing of consumers in the development of a circular economy, as well as on non-conventional ways people may engage in resisting throwaway consumerism. Exploring sustainable consumption literature, we identified a requirement for sufficiency or 'slower' consumption models in response to affluence and overconsumption and identified a lack of research on the impact of decluttering trends such as the KonMari method on practices and attitudes related to consumption. At the same time we called for greater acknowledgement of mainstream consumers as complex, often conflicted individuals who act emotionally or routinely to fulfil immediate human needs rather than distant ecological or ethical values. We also drew attention to literature, e.g. from the field of design, which outlines the importance of material interaction and reflexivity in transforming consumption activities. Drawing on Evans's definition of consumption as a series of 'moments', we focused our empirical study on practitioners of the KonMari decluttering method.. After initial scoping surveys distributed to practitioners who were members of the official KonMari Facebook groups in the UK & Ireland and Sweden, we conducted a series of interviews in both countries to explore the influence of the KonMari method on the practitioners' approach to material consumption. By qualitatively coding and analysing the interviews, we uncovered common themes that seemed to show the potential for practices such as KonMari decluttering to reorientate people's relationships with their material possessions and their approach to acquisition, as well as their related experiences of wellbeing. We cannot conclude that Marie Kondo's method of tidying is a direct route towards reducing materials streams or environmental impacts, since this would require detailed material flow analysis on a larger scale and of course decluttering also involves an initial increase in disposal. Moreover KonMari practitioners are likely to be more predisposed towards the benefits of tidying and decluttering since they were initially motivated to read about and begin the method. Nevertheless, our findings show that participants report significantly different approaches towards the organisation and enjoyment of their current home environment as well as a reduced interest in shopping for new items. The ritualised process of reflecting on what actually brings them joy, or makes them happy, appears to lead to a reinterpretation of the meanings of possession, to a new sense of autonomy and even to increases in physical and psychological wellbeing. Practitioners seem able to connect with their own feelings about their homes and belongings and hone their 'joydar' accordingly to become more discerning about bringing new things into their home and much less prone to shop on impulse or to buy things they do not really need or want.. Amongst committed KonMari practitioners in affluent geographies such as Sweden and the UK therefore there seems to be a correlation between the KonMari process and reduced acquisition, and these results therefore offer some hope as to the possibilities of reducing material consumption in such contexts. We suggest that the increased focus on people's feelings about their material environment and its impact on their wellbeing can be associated with the 'unintentional' slowing down of consumption among participants and that this, in turn, could provide an important way to engage mainstream consumers with a sufficient circular economy.

AUTHOR CONTRIBUTIONS

757 The study was jointly conceived and executed by both authors, with the survey and interview guide initially
758 conceived by ÅC and conducted by her in Sweden, and subsequently adapted and conducted in the UK by LC.
759 The introductory and methodology sections were jointly agreed upon and written, with LC contributing
760 particularly to sections involving circular economy, , sufficiency and sustainable consumption and ÅC to those
761 involving sufficiency, consumption, wellbeing and the KonMariers. The majority of the results and discussion
762 sections and the conclusion were written by LC, but many rounds of iteration and editing were conducted by
763 both authors.

764 **CONFLICTS OF INTEREST**

765 The authors declare that there is no conflict of interest.

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Paper 5

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The Future Consumer: Sparking imagination and engaging people in meaning making around circular economies for clothing

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Abstract
Future Consumer is an interactive exhibition piece displayed in Trondheim, Norway as part of the 2019 Big Challenge science festival. It uses a speculative, activist design approach based in local Trondheim culture with aspects of storytelling and participation in order to present visitors with alternative, circular scenarios for buying, wearing and disposing of clothing and engage them with their own current feelings and practices around clothes. People often find it difficult to imagine the future for themselves, so the first part of the exhibition provides a possible scenario for them to react to, incorporating elements of the familiar with the unfamiliar. The second part allows them to reflect on their own practices and feelings and how these relate to other peoples' by participating in simple activities such as examining what they are wearing in a mirror, or representing their feelings at different stages of the clothing cycle by using small pieces of cloth to 'vote'. As well as the records left by visitors, ethnographic research is conducted by means of observation and short interviews. Building on the findings of the exhibition, the paper discusses how new meanings and cultures can be created around clothing in a circular economy, and how the involvement of consumers in a particular locality can provide insights for businesses and public sector organisations.

Keywords: Circular Economy, Speculative design, Interactive exhibition, Design for Sustainable Behaviour

1 INTRODUCTION

We have known about the dire consequences of climate change and the necessity of transitioning to sustainable ways of living for decades, yet human societies seem unable to galvanise and translate this knowledge into action. Sustainable production and consumption have been spoken about for more than 25 years [1] and most recently the concept of a circular economy has been taken up by large and small businesses around the world. Most circular economy literature until now has tended to focus on business models and materials cycles, on what must change rather than who must change it and how it can happen. The consumer is at the centre of some well-known representations, such as the Ellen MacArthur Foundation's 'butterfly' diagram, and yet to date there has been very little attention given to whether consumers are actually likely to accept or participate in a circular economy, and how they are most likely to get involved [2]. Likewise, although the field of design has a long history of considering and interacting with users at an individual product or service level, thus far there has been a paucity of research with regards to its role in engaging consumers with the circular economy through narratives and practices, particularly with reference to consumer culture and sociology [3]. Consumer culture literature has described consumers variously and over many decades as sovereign decision makers, as victims of a corporate system, as unmanageable and unpredictable – and as subject to a complex, ever-changing array of values, goals, impulses, feelings, routines, habits and intentions. People as consumers are constantly confronted with and influenced by the images, norms and practices of capitalist culture and the linear economy, often mediated by the work of design, which therefore begs the question of how they will react when presented with alternative practices and norms that relate to a more circular lifestyle.

Design for Sustainable Behaviour is an emerging field which has presented some interesting suggestions and solutions for changing consumer behaviours at the level of the individual, using different incentives on a scale from information to control in order to encourage 'better' or more sustainable behaviours. Nevertheless, product-focused or micro-level changes do not always translate well at a societal level and rebound effects can cancel out these small positive differences. Other approaches which focus more at the level of practices and which take into account contexts, cultures and emotions may have greater impact in the long term, yet these are also underexplored especially in the context of a circular economy.

According to Krippendorf, people act according to what things mean to them [4] and therefore changing the stories that people tell themselves about the world around them seems to be critical to engaging consumers with activities that accord with a circular economy. Dominant narratives continue to uphold the grails of growth and efficiency, and there are few alternative visions which present attractive

and realistic possibilities for sustainable living. It is very difficult for people to imagine what does not yet exist [5] and failures of sustainable or 'circular' behaviour may be seen as a result of our failures to imagine what these kinds of lifestyles look like in practice. As Erik Olin Wright puts it, 'the actual limits of what is achievable depend in part on the beliefs people hold about what sorts of alternatives are viable' [6, p. 161]. Design is fundamentally about creating, reconstructing and communicating meaning, and as such has a critical role to play in reorienting people's behaviour, not just through a scale of control and information as in DfSB but also by reconfiguring meanings, presenting the familiar in a new light, stimulating imagination and inspiring shifts in perspective.

2 ACTIVIST AND SPECULATIVE DESIGN

In the so-called developed world, design has been instrumental in delivering a linear economy of 'faster, better, cheaper'. Through its close relationship with neoliberal models of business, commerce and marketing it has been implicated in the production of needs and creation of wants by such means as novelty and taste creation [7], [8]. Designers as cultural intermediaries filter different forms of value through various material and immaterial nodes – products, representations, services – and consumers engage these designed processes and products in their everyday lives. 'In effect, design culture contributes to the structuring of practice' [8, p. 17]. Against this backdrop of a commercially driven design industry which facilitates the production and consumption of increasing quantities of stuff and thus the unsustainable model of a linear economy, the subfield of Design Activism has emerged to address social, political and environmental concerns within everyday contexts [9]. It is not an overt protest or act of resistance, but rather uses elements from social design, critical design, design thinking, participatory design and others to create a counter-narrative for positive change [10] and provide 'a designerly way of intervening in people's lives' (Markussen via [9, p. 226]). It is normative and purposive and navigates the challenges and realities of current circumstances whilst also attempting to redirect them [9].

Speculative design likewise seeks to engage people critically with alternative futures and to influence their ideas about what is possible [6]. It provides a forum for designers to explore counterfactuals or 'what-ifs', to explore other worlds and reimagine everyday life, and to engage audiences' imaginations with what could or should be through fictional scenarios. As with design activism, speculative design is free from commercial demands and constraints and therefore free to experiment, to create tangible futures that provoke reflection and conversation about what people need or want, as well as what they might not want [11], [12]. According to Dunne & Raby, exhibitions are 'ideal places to explore and enrich our 'self-understanding'' as they can connect science with design and spark discussion and debate. They are like laboratories for 'rethinking society, places for showing not what already exists, but more important, what is yet to exist'[6].

3 RESEARCH METHODOLOGY AND EXHIBITION DEVELOPMENT

Given these design approaches, an opportunity arose to put them into practice through the medium of a physical display addressing futures of consumption. Between 16th and 19th June 2019 the city of Trondheim hosted a large science and culture festival called the Big Challenge, which comprised high-profile lectures as well as a permanent exhibition called Futurum that focused on 2050 scenarios for the city. The brief for the Futurum was a departure from traditional museum-based exhibitions: future-focused, participatory, normative and based in local cultures or communities (see Table 1), it aimed to engage audiences with visions of alternative sustainable (or less sustainable) futures that were based in current realities, through the work of researchers from NTNU's science departments.

Table 1: Initial brief for the Futurum exhibition

Museum	Futurum
Conserves the past	Creates futures
Objects in focus	Process in focus
Invites observation	Invites participation
Descriptive orientation	Normative orientation
Expert authority	Polyphonous and inclusive
Generic audience	Community-based

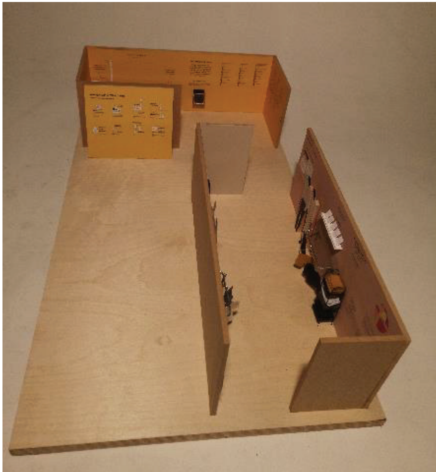
As a PhD and Master student at NTNU we were offered the opportunity of a module in the exhibition, and saw this as an opportunity to communicate potential future circular scenarios to consumers through an interactive display which allowed people to participate in or simulate consumption in a circular economy, as well as to explore their own actions and choices around clothing. The resulting module, Future Consumer, also allowed us to disseminate some of the circular consumption concepts which have been worked on in the context of the CircEUit project (see Acknowledgements). The display was conceived as *'an interactive exhibit based on design research that uses storytelling, performance and fun to question people's preconceptions around clothing, tap into their emotions and help them to take part in a future circular economy.'*

The project represented research through design, a form of design exploration [13], and by using our research into speculative and activist design as well as other interactive exhibitions (e.g. The Happy Show or Process Lab [14], [15]) and an ongoing ideation process, we found that the concepts of 'provocation' and 'reflection' emerged.

Following these theories and processes, we aimed to create something that was future focused yet rooted in present local culture, that was attention grabbing and even inspiring yet relatable and everyday, that was aesthetically pleasing as well as tangible and inviting participation.

As well as being influenced by design theory, the project also went through several stages of user research, development and prototyping, including a mood board about interactive exhibitions, future vision mapping, a survey about Trondheim consumers' relationships with the future, short interviews to gain insight into items people wished to keep for 30 years and why, as well as interviews with visitors to a clothes swapping event – and finally user testing and scale prototypes and digital sketches of the final concept (see Figures 1-3). We decided on the context of Trondheim to make it relevant to local visitors (the two concept stores were extrapolations of shops that currently exist in the city), and on the scenario of clothing to ensure universal relevance as well as to elicit more emotional responses: clothing often expresses identity and the stories people tell about themselves [16], even if this is the story of not caring about what they wear!

Not only did the exhibition provide an opportunity to develop and design a speculative scenario to help consumers imagine circular clothing possibilities and reflect on their current activities, it also allowed us to collect data and document visitors' responses to the display. This was done through the exhibits themselves – the stickers from the reflection exercise and the textile squares 'survey' (see below) – and also through ethnographic-style observation, photography and short interviews. This inquiry followed several classic characteristics of qualitative research (involves multiple methods, focuses on participants' multiple perspectives and meanings, relies on the researcher as a key instrument in data collection, involves an emergent design, involves inductive-deductive reasoning [17]); fundamentally it addressed both the interpretation and transformation of the world, and the meanings that people apply to situations or phenomena [18]. Following a cultural analytic paradigm of research [19] it involved us as researchers being fully involved in processes of discovery and understanding, and reflexively examining our own assumptions to understand how the cultural notions of actors and interpreters can frame and influence actions, and that data are not merely gathered but also produced by the context of the research [19, pp. 50–51].



Figures 1-3: user research, prototyping and development phase

4 CONTAINER 1: PROVOCATION

The first container was based on the idea of two concept stores, for first-life and second-life clothing, that could exist in Trondheim in 2050. In order to make them relevant for visitors they were both inspired by shops that currently exist in Trondheim, the first-life store being a combination of JohnnyLove and Livid Jeans, shops which have a sustainable ethos and which prioritise long-lasting and recycled materials, timeless styles and repair. The second-life store was inspired by Prisløs, a shop for vintage and upcycled garments. In the container display we wanted to propose that these sustainable practices could and should be taken further in the sustainable world of 2050, and we added our own suggestions for how this could look and feel.

The first-life store provided four material samples (wool, raw denim, linen and recycled polyester) which customers could touch and read about before 'selecting' one; each of these had been purposefully researched and chosen by us for its circularity credentials (e.g. long lasting, biodegradable etc). Customers could view ready-made clothes on mannequins and a rack in order to get an idea of the styles available, and to give the store a familiar feeling. Each item came with a label which explained how they could best care for and prolong the life of the garment during use, as well as what to do with it at the end of its life – whether it was in need of repair or they were merely bored with it. A 'touch screen' placeholder implied that customers could tap and upload a digital avatar in order for the item to be tailored to their individual measurements (a speculative nod to the direction of current technology!), and after payment their bespoke garment would be ready within the week. The store also included futuristic 'advertising', or rather storytelling, in the form of images and text about 'real-life' Trondheim residents who currently shop at the store. The rationale for this was that current fashion adverts usually portray anonymised, unattainably 'perfect' models which help to perpetuate desires that can never be fulfilled, and therefore the model of increased consumption in pursuit of these unrealistic ideals [20], [21].

The second-life store contained a shelving unit filled with 'old' textiles – materials which had once been curtains, bed sheets, table cloths or other clothes, from which customers could select a colour or fabric they liked in order to create their dream garment. They could then choose a pattern for a clothing style, and either purchase both to take away and make up at home or place an order for the Prisløs stitchers to create it for them. A clothing rail and two mannequins displayed 'current' customer orders to give them an idea of the possibilities available. Each piece of fabric or made-up garment also had a handwritten label pinned to it, to tell the story of its first life or previous owners, or to give people suggestions about what it could be made into. As with the first-life store, there were also stories on the wall describing the clothing habits and penchants of current Trondheim customers, using social norms to prove to potential customers that 'people like them' also shopped there, and to give people ideas for how they too could buy, wear and dispose of clothing in a more circular way.

Figures 4-6: Impressions from container 1, 'Provocation'

5 CONTAINER 2: REFLECTION

The second container comprised two different activities which allowed people to reflect on their own 'story' or relationship with their clothes. The first one was a variation of Marie Kondo's method of decluttering, in which people need to decide whether their stuff 'sparks joy' for them or not, and which it has been suggested can contribute to a reduction in overall consumption habits [22]. Visitors were encouraged to literally look at their reflection in the mirrors, choose one piece of clothing they were wearing and decide how it made them feel – whether joyful or indifferent or even worse! They then took a sticker and marker pen from the shelf, wrote down how they felt about the garment and why, and stuck it on the large-scale 'tape measure' on the wall, near the top if it made them feel good, near the bottom if not, and somewhere in the middle if they felt indifferent towards it. They then took a wallet-shaped 'challenge' card from a pocket on the wall which encouraged them to think about only purchasing or keeping clothes in their daily life which really sparked joy and made them feel good.

The second activity involved visitors building a 'story' of their clothing habits and decisions using pieces of textile, in keeping with the theme of the module. After selecting six textile squares, they completed an interactive 'survey' in six categories, choosing to place their textile on a spike next to one of seven answers for each category in order to 'vote' for it. The categories included a) what prompted people to shop for clothes, b) what features they look for in new clothes, c) reasons for not using some of their clothes, d) reasons for getting rid of clothes, e) methods of disposing of clothes and f) future plans or wishes relating to clothes (see Table 2). Responses to both the Marie Kondo exercise and the survey were documented and analysed as part of the overall ethnographic inquiry into peoples' relationship with their clothing and the role of reflection through interactivity or participation in eliciting and changing meaning.

The final section of the module comprised an infographics wall, which depicted eight facts about the negative impacts of the fashion industry and the need for change using simple imagery and text that we judged to be relevant and comprehensible for the Trondheim audience.

Figures 7-9: Impressions from container 2, 'Reflection'

6 RESULTS

6.1 Marie Kondo reflection activity

By the end of the four-day exhibition, most of the wall space by the 'tape measure' had been filled with stickers, with most of these being in the top and middle sections of the wall, indicating that most people were feeling good or indifferent about the clothes they were wearing. There was a lot of variety in the comments that people made (e.g. see Fig. 10), though quite a few were associated with the warm weather that the festival experienced, especially during the first two days, and it seemed that visitors associated wearing summer clothes with the good feelings they experienced on sunny days. When comments were left near the bottom of the scale the stickers were often placed in a skew-whiff way or off to the side, indicating that they were a little ashamed and did not want others to notice that they felt bad about their clothes. This accorded with our observation that if people were wearing a combination of clothes they felt both good and bad about, they would most likely pick the ones which they felt good in to write about.

Figure 10: Examples of resulting stickers from the Marie Kondo mirror activity in Container 2

6.2 My Clothing Story activity

The results of the textile 'votes' in the interactive wall survey are shown in Table 2. Most people apparently shop for things after careful consideration, buy quality garments that will last, don't wear the clothes they don't feel good in, get rid of things when they are damaged or are worn out by giving them to charity, and want to only have clothes they will love and wear a lot in the future. There are many themes here which could be extrapolated and explored further, but in the context of this research it is interesting to note that it is feelings, or rather 'not feeling good' in certain garments which influences people to not wear them – and eventually to get rid of them. Although most people claim to get rid of clothes only when they are worn out or don't fit, a significant number (72) also dispose of things when they are 'tired' of them, supporting the view that it is emotional or style obsolescence or the 'ideology of use' just as much as technical obsolescence which leads to clothing becoming waste [16].

6.3 Observations and interviews

Many visitors to the festival were employees or students at NTNU or already interested and fairly knowledgeable about sustainability issues, so the need to reduce environmental impacts associated with fashion was not 'news' to them, and the exhibits functioned more to reinforce what they already knew than to provide new information.

We noticed that the interactive parts in particular prompted conversation: people lifted flaps to read about the materials, took clothes off the rails to show each other the labels, and many conducted the 'My Clothing Story' activity together with friends or a partner and took time to discuss their responses before hanging the cloth square on the spike. From observing and talking to visitors and the short interviews we conducted it became clear that people enjoyed and were engaged by these activities because they thought they were 'fun', and because they prompted them to reflect on their own behaviours. For several people they also served to highlight the discomfort of the values-action gap [23]. As one lady reported: 'I got a bit sad when thinking about why and how I buy clothes… I didn't get to pick the answers I wanted in the textile activity, and I think that said something about me that I am not comfortable with! It was very different to the answers I would have liked to give!' As well as guilt and embarrassment however, for people who were already doing the 'right thing' it elicited feelings of positivity and reassurance.

Visitors were mostly (around 70%) adult women, yet there were several couples and also families with children at the weekend and school groups in the week days. The Crown Prince of Norway and several local dignitaries and ambassadors also paid a visit to the stand, and the number of textile squares on 'My Clothing Story' indicated that more than 300 people had taken part.

Table 2: results of the ‘My Clothing Story’ exercise in Container 2

I usually shop for clothes		I often look for…		I rarely or never use some of my clothes because…	
On impulse	43	Certain styles or trends	41	I don’t want to be seen in the same outfit	1
When I’ve seen someone else wearing something nice	15	Things that are quality or will last	102	I can’t see what’s at the back of the wardrobe	51
When I’m bored with the stuff I own	85	Specific brands	9	I don’t feel good in them	152
To cheer myself up	31	Functionality	89	The garments aren’t trendy any more	8
As a fun activity with friends or family	23	Sales or bargains	61	The garments are old or worn out	53
After careful consideration	98	Originality or uniqueness	62	I have changed my style	49
When I have almost nothing left to wear	72	Where or how the garments were made	14	I use all the garments I own	41
When I get rid of my clothes it’s because…		**The way I get rid of clothes is to…**		**In the future, I want to…**	
They are damaged or worn out	141	Put them in the rubbish bin	26	Express myself better through clothes	14
They don’t fit me any more	112	Give them to charity	231	Only have clothes that I love and will wear often	124
I don’t know how to mend them	11	Resell them online	9	Spend more time repairing my clothes	31
I’m tired of them	72	Swap them with others	12	Rent clothes, instead of buying them	8
They are out of style	5	Give them to friends or family	50	Sew my own clothes	34
I need to make space for new ones	7	Use the material for something else	15	Go for quality instead of quantity	116
I want to earn some money	4	Put them in the garage or attic	10	Shop more second hand	68

7 DISCUSSION AND CONCLUSION

As a laboratory for rethinking society and showing what could or should exist [6], the Future Consumer module did indeed provoke critical discussion and reflection of clothing options for consumers in a circular economy. As with previous design experiments that have prompted the suspension of disbelief, questioning of everyday norms and the creation of new narratives around sustainability [24], Future Consumer used physical story-telling and participation to engage people in constructing or rather deconstructing their own realities and reimagining possible futures. Bodily interaction seemed to have more impact than reading posters or looking at exhibits since people were forced to commit themselves and confront their own actions in a more embodied way, which seemed to result in personal discomfort and reflection as they realised the values-action gap in their own lives. Meaning emerges through practice, and making the displays ‘fun’, for example with the mirror exercise and interactive textile survey seemed to increase people’s enjoyment and engagement. We also observed that the aesthetic of the module drew people in to look closer, engage in the activities and take photos, and we received comments to the effect that people appreciated this designed, non-technical format in comparison with the modules that were focused around screens or virtual reality.

It is of course difficult to say that the module definitely had the effect of changing the meanings and interpretations that people had around clothing and of prompting them to engage with circular clothing, nevertheless we as researchers both took part in and observed several discussions with visitors who said that they would look for more sustainable clothing options or reconsider the ways in which they interacted with their current wardrobes.

By taking a speculative and activist approach [9], the design of the exhibition drew attention to the social and experiential role of the user in determining clothing longevity and circularity [16]. The aim of the design exploration was not to create solutions for business as, in line with speculative design, it took place in an experimental space free from commercial demands.

Nevertheless it provides insights for activist designers and perhaps some circularity-focused business and public sector organisations in that engaging consumers through storytelling and 'active' or performative communications may be an effective means to get them to reflect in a bodied way on their own habits or behaviours, in this instance around clothing, and to experience their personal value-action gap in a simple, culturally relevant and non-dictatorial way. Whether such interventions shift or transform those habits and behaviours in the long term of course requires further in-depth and longitudinal studies.

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When despair for the world grows in me
and I wake in the night at the least sound
in fear of what my life and my children's lives may be,
I go and lie down where the wood drake
rests in his beauty on the water, and the great heron feeds.
I come into the peace of wild things
who do not tax their lives with forethought
of grief. I come into the presence of still water.
And I feel above me the day-blind stars
waiting with their light. For a time
I rest in the grace of the world, and am free.

(Wendell Berry, The Peace of Wild Things)

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