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Consumer practices in use and disposal: the sustainable fashion challenge

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Abstract

Title: Consumer practices in use and disposal: the sustainable fashion challenge

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Purpose

The purpose of this thesis is to research the main environmental issues concerning fashion from a consumer's perspective, identify the practices that exacerbate these matters and the sociocultural initiatives that are striving to overcome them. In the course of the paper, the authors hope to provide with more insight into consumer practices and mindsets regarding sustainable practices in order for future strategies concerning sustainable fashion to be more accurate and precise.

Method

The study is conducted through the implementation of action research methodology after conducting an extensive search of the existing theories and studies in the area of the research. The first part of the action research process was carried through the observations and twenty interviews completed in attendance to clothing exchange events, by researching the outline of the present sociocultural initiatives to overcome fashion sustainability issues in popular media, and the revision and reflection on the findings collected. The second part on the research was made by outlining a project where the previously identified issues are tackled in the integration of the different initiatives that strive toward more sustainable practices from a consumer perspective into one platform. After the outline of the project ten interviews were conducted in the latter part of the second phase of the action research, where the project served as a vehicle to assess the interviewee's current practices and views regarding sustainable fashion. After collecting the different findings and integrating them with the predefined theoretical framework, a reflection including a final version of the platform and the answers to the proposed research questions are constructed to give closure to the study.

Conclusion

The main environmental issues related to fashion are caused during the use and disposal phases in a garment's life cycle, which falls under the responsibility of the consumer. However, the public is largely uninformed and the practices related to these phases are not changing rapidly enough. There are initiatives to shift these practices, and they are slowly becoming popular and helping change people's mindsets regarding their actions, but there is a need for much more extensive divulgation of how each individual's practices affect the environment and how these actions can be shifted in order to contribute to a more sustainable future.

Keywords: Consumer behavior; consumer practices; garment life cycle; upcycling; swapping; sustainable fashion; sustainability practices; sociocultural forces; DIY; use and disposal practices.

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1. Introduction

In the last two decades a drive for sustainable fashion emerged, grew and ultimately failed. In its beginnings the boom of green fashion and the saturation of labelled so-called sustainable garments, followed by the realization that most of the labelling did not hold any consistency behind it, overwhelmed consumers and made them immune to the effects of green marketing. This occurred because of the approach the fashion industry took regarding the topic. They needed to sell their products no matter what, and if a green tag with a recycling logo and a “green is the new black” motto would help them, they would embrace it. However, after several scandals and inquiries about the validity of the sustainable claims advertised, consumers grew rapidly disappointed and eventually unconcerned, falling back into their usual consumption habits without regard for ethical and environmental aspects. Nevertheless, once uncovered, the issues emerging from the production of garments could not be hidden once again, and companies were then required to take regulatory measures in order to mitigate the effects of the industry, if only to satisfy the general public’s knowledge and perceptions of the brands. As is well known this is not yet standard procedure and the ideal scenario for sustainable fashion production is still a road that continues on, but a small battle was won in the sustainability agenda and corporate social responsibility is nowadays common practice within large enterprises, again, if only for the sake of their stakeholders view.

The truth, however, proves to be that this is not enough. Of the main environmental issues caused by clothing, not production, but use and consumption proved to be the most critical points in the larger picture. The amount of water, energy and waste created by laundering alone poses one of the biggest threats to the sustainable fashion notion, as well as the ever increasing textile waste in landfills. These issues are related entirely to each individual user and their actions, but the endeavor of making the large public aware of this issue is being undertaken by several, relatively small enterprises both private and public that don’t seem to be succeeding according to the studies. The public is not going to voluntarily wake up and undertake the quest for consuming and disposing sustainably unless they become aware first of their actions, and are given enough infrastructure to do so. This thesis concentrates on the problematic of consumer awareness regarding both use and disposal phases as well as the existing or possible solutions that help mitigate the devastating effects on the environment clothing is causing nowadays.

1.1 Background

In addressing sustainable fashion the focus usually falls on environmental issues, but the truth is that users and their choices create the most environmental harm (Hethorn & Ulasewicz, 2008). Several studies have shown that most of clothes’ environmental impact is created during the using phase, and when a garment is purchased the responsibility of the product’s care and maintenance is transferred to the new owner, so the ‘burden’ of being concerned with the impact of the piece of clothing is also shifted to the user. This garment will go through many different activities during it’s life-cycle including wearing, washing, drying, storing and eventually being disposed of (Gwilt, 2014), and how it fares and for how long it lasts depends entirely on each individual. A research report of public understanding regarding sustainable clothing done in the UK presents comprehensive knowledge about people’s understanding and interests regarding clothes and sustainability, and the main findings of the research are that people’s awareness of sustainability impacts of clothing is worrying low (Fisher et al., 2008). The research includes a list of action recommendations to be taken in order to improve the current situation, of which the following four key points support the rationale for this study and the need for the development of a new sustainable fashion business model.

“- Improve the public’s knowledge of sustainable clothing practices, using the appropriate media and to integrate information on the sustainability.

implications of clothing acquisition, use and disposal into the retail environment.

- Build on the 'Wash at 30°C' campaign and consumers' desire to save money to promote good habits in tumble-dryer use.
- Encourage clothing maintenance skills and awareness for children and adults, including repair to promote longer life-spans for clothes, for instance by supporting alteration and repair services and targeting population segments that value thrift.
- Work with retailers and local councils to increase people's understanding of the reuse of clothing and recycling of fibre in order to divert textiles from the waste stream and develop greater understanding of informal second-hand markets and their potential to promote re-use." (Fisher et al., 2008, 9-10)

Some of the issues identified by the research are consistent with the future wardrobe metabolism proposed by Fletcher and Grose, in a scenario where users are concerned with sustainability matters and reuse, remake, share, lend and donate clothing as well as recycle the no longer wearable items, and purchasing second hand clothing, resulting in a practice system that would increase a garment's life span with simple but effective methods (Fletcher & Grose, 2012). However these methods are not yet so widely available or encouraged and the awareness to drive them is still on its way. In the succession of this research the reasons for the consumption paradigm, the current views on sustainable fashion and some of the different alternatives to overcome the current issues of sustainability will be looked into both from a theoretical and an empirical approach in an attempt to develop a project proposal entirely focused on aiding the average user conquer the barriers that prevent sustainable fashion from being a reality in the use and disposal phases.

1.2 Structure of the thesis

This thesis is structured in different phases, and throughout the document Krista Korhikoski and Teresa Gallardo Romero will be referred to as the authors. After introducing the topic, the first step consists on reviewing the existing literature on the introduced topic, as well as the current findings and statistics related to it. In the framework the current fashion consumption rationale is outlined, together with the main environmental issues related to the use and disposal of fashion garments. Later on the existing initiatives to overcome these issues are overviewed, as well as the main characteristics of the fashion industry's perspective regarding sustainability. After establishing the appropriate background, the action research method is explained in detail in order to present how the study evolved and was conducted. In the next section, the different findings, observations and reflections resulting from the research are presented and analyzed. In the final phase of the study a project proposal is made that aims to overcome the issues found through research, and a conclusion summarizing the research and the results gives closure to the paper.

1.3 Purpose

The purpose of this thesis is to research the main environmental issues concerning clothing from a consumer's perspective, identify the practices that exacerbate these matters and the sociocultural initiatives that are striving to overcome them. In the course of the paper, the authors hope to provide with more insight into consumer practices and mindsets regarding sustainable practices in order for future strategies concerning sustainable fashion to be more accurate and precise.

1.4 Research Questions

- What are the main current sustainability problems regarding fashion from a user and consumer's perspective? What are the main obstructions impeding more sustainable practices?
- What are the main sociocultural initiatives that strive towards a more sustainable fashion consumption model?
- What kind of infrastructures (businesses, resources) are available that would help overcome the issues developed during the use phase?

1.5 Delimitations

The chosen area of research occurs within new and innovative business models and sustainable fashion from a consumer and user perspective. It is a multidisciplinary approach in order to contemplate not only the environmental factors but also the social factors that influence the problematic of fashion consumption, after purchase care of the garments and the strive for meaning in an over saturated market of goods. This research does not include the problems of sustainable fashion related to material and garment production methods and treatments, as well as distribution or other issues tackled within the textile value chain, as it has been extendedly researched and there are several official institutions already set about to diminish its impacts.

The study incorporates theoretical knowledge in the chosen fields as well as an action research, complemented by secondary research, that summarizes in a project proposal. The action research was done in the city of Borås, Sweden, but the participants observed and interviewed were not exclusively Swedish, and the interaction with them was conducted mainly in English. Because of the multidimensional type of the study, its results are not framed within the context of the locality but rather seek to be suitable to a wider scale.

2. Theoretical Framework

This section deals with the reasons leading and maintaining to the current paradigm of fashion consumption, and the main user and disposal originated environmental impacts that transfers from the overconsumption rates. Also it explores the existing initiatives to overcome the current consumption rate, as well as a fashion industry overview regarding sustainable practices.

2.1. Drivers of fashion consumption practices

Fashion is an extensive concept as it can be related to areas from mass-production to art items and concepts, from luxury environments to environmental issues, but above all it is an industry that employs millions of people around the world and a force that controls today's clothing consumption. Fashion creates more value to clothing and connects products with people, creating a cultural system (Dant, 1999) which merges consumers with groups of professionals like designers, stylists, bloggers, artists and journalists. Fashion can be seen in different ways, depending on the angle for looking at it. It can be part of aesthetics, a display of current society, a mass pastime and a form of art (Wilson, 1985) as well as an element through which people can express their individuality and social cohesion.

Fletcher argues that "fashion is consumption, materialism, commercialization and marketing" as well as "watching, shopping and purchasing" (Fletcher, 2014, p.139). Her description is plain and prunes all glamour from the term, reflecting a side of its true nature. Yet fashion is a controversial concept, it cannot be narrowed down to simplistic definitions because of the diversity of meanings and practices it holds and encompasses. It has been praised and condemned but not forgotten, and the current environmental issues and consumption paradigm confirm that no matter the concerns it may rise, fashion is still a very important actor in a society, and a deeper understanding of its meanings and driving forces is needed in order to help enlighten the the processes leading to the environmental issues it contributes to create. The next sections explore the concept of fashion further, especially concerned with what it means and why people consume it.

2.1.1 The meaning of fashion

The way people see fashion and its meaning depends on their own values and needs. Niinimäki (2010) sees that fashion is a symbolic production that combines human beings with their emotional needs reflecting their individuality and personality. Clothes, the material product, give meaning to the fashion industry, creating need for design, manufacturing and eventually consuming (Niinimäki, 2010, Dant, 1999). Therefore fashion is the frame of reference while clothing, or dress, is the vehicle through which we perceive and interpret it. Fashion is spread to all parts of society, and wearing fashionable clothes can make the user feel like belonging to a particular social class, usually better or higher than the user normally belongs to (Sapir, 1931). However, since fast fashion companies have made fashion affordable for everybody, the amount of disposable income for fashion is not necessarily directly proportional to the style a person has anymore, as cheap manufacturing and low material costs enable clothes to have luxurious looks without actual expensive selling prices.

Tim Dant (1999) states that the rationale behind wearing clothes is a social process; it is a way to show others who we are, as the power of fashion as a communication tool is significant (Hethorn, 2008). Fashion and clothing help build an identity and communicate with it (Barnard, 2007), and it is possible to express individuality using objects whose meanings someone else has created and defined for their reproduction (Von Busch, 2008). Fashion is used as a inclusive or exclusive tool, in one way by its followers, ascribing to its meanings, and in another by its detractors, by purposely separating themselves from it, they are still using it as a statement (Aspers & Godart, 2013). Expressing individuality through ready-made pieces is nowadays possible, as the fashion market offers multiple options from which consumers can choose their favorites and combine them in a way that reflects their personality the

most. Fashion is a mix of conflicts and relations between settled meanings, tastes and world situations (Calefato, 2004). It is an element that offers consumers the possibility to be individual, but at the same time connects them to others.

McCracken (1986) argues that one of the main meaning-delivery aspects of the fashion system has been through transferring meaning from the culturally constructed world to the material products. The whole fashion industry culminates in these products, for the main purpose of the industry is to get profit through their sales, but the driving forces behind the purchases are socially constructed and purposely designed to be reflected in the material items. The way people express themselves through fashion is based on products, and the unification between the user and the product gives more meaning to both clothing and fashion (Dant, 1999).

2.1.2 Fashion and change

Quickly changing trends, new seasons and collections make fashion interesting and while being constantly updated it is also continuously outdated past trends and seasons. Fashion is a complicated process which can be influenced, but never planned in advance or forced to happen (Aspers & Godart, 2013). If you should describe the nature of fashion in one word, the word would be Change. The process of change, when a product or practice replace another can't be related to cyclicity, as becoming fashionable is a selection process (Aspers & Godart, 2013) which doesn't happen by itself. Sapir (1931) presents changes to be dependent on the current situation of culture, society and people. Clothing becomes fashion when enough consumers have adopted them, and when the interest ends they go out of style (Agins, 1999). Consumer choices are the driving forces behind fashion, and fashion brands create frames of meaning and value around their products to influence the purchase process, but ultimately consumers make the decisions (Aspers & Godart, 2013). Nowadays culture of consumption is feeding and encouraging fast fashion in a literal sense, which translates into constant changes in wardrobes and the accumulation of garments. Technology has encouraged the adoption of a "time is money" attitude in the fashion industry, where everything is rapidly shifting. The main factors that have contributed to the speeding of fashion are fiber and garment production as well as distribution and communication facilities (Sapir, 1931). Using new technologies garments can be manufactured 30% or 40% faster than previously (Gwilt, 2014). Fast communication between fashion companies and factories enable short lead times and ensure rapid turnover in retail stores. In the same way, technology has made communication with consumers easier and quicker; with one click of a mouse tens of thousands of people can be reached in seconds. Technology also enables different kind of transportation options, by air, roads and seas, depending on how quickly products should be delivered.

According to Hethorn and Ulasewicz (2008) the process of change go hand in hand with the generation of waste. The speed of change makes processes in the fashion industry especially complicated. and maintaining the speed of the whole fashion cycle causes significant environmental and social impacts. The desire to follow quick changes can easily drive consumers to overconsumption of fashion by purchasing products they eventually don't even need (Hethorn and Ulasewicz, 2008). In the future the cycle of fashion can become slower, and the word 'Change' can still be descriptive, but then related to a fashion cycle that is much slower and perhaps with more significant changes in the physical garments to justify the need for change by their characteristics and appeal and not by the drive of consumption.

2.1.3 Consuming fashion

In 2009 Europeans (EU-27) spent around 370 billion € in clothing and footwear (Fashion United). The sum speaks on behalf of the notion that use and consumption of clothing and fashion are part of human nature, a way to satisfy our needs (Cataldi et al., 2013). Human needs can be categorized into two classes: physical (material) and psychological (non-material) needs (Fletcher, 2014). The material reason why people need clothes is to protect them from weather changes to prying eyes, but the need

for fashion is different; it's more symbolic (Fletcher, 2014), and it occurs within a social context. According to Niinimäki (2010) purchasing products is not the real need, behind it there are deeper reasons which control and drive the consumer and his choices. Purchasing fashion give consumers more than just clothes for protection; it can be linked to the feelings of satisfaction and acceptance, which guides them to continue buying. Fashion can be understood as an element that fulfils human needs of identity, creation and participation (Cataldi et al., 2013).

The way how current fashion consumption works is not an ideal model. Spending money for fashion has been always related to consumer's identity, wealth and social status (Jack, 2013), but not anymore. The last few decades have changed the situation and have made consuming fashion possible for everybody. Today consumers have the power; they can choose what to wear, where and when to buy it and how much they are willing to pay for it (Agins, 1999). It's not unusual that a consumer goes to the retail store, tries a product there and purchases it later at home from an online shop where the price is cheaper. Online shopping offers fashion consumers limitless purchasing possibilities, as they can easily search, compare and order products from around the world, making the experience broader.

2.2. Sustainability fashion issues from a consumer perspective

The World Commission on Environment and Development defined the concept "Sustainable development" in the Brundtlandt report (1987) as follows: "it meets the needs of the present without compromising the ability of future generations to meet their own needs". The definition creates the frame in which the whole clothing industry and consumers should understand and pursue sustainability, but the current situation is far from it. The clothing and textile sectors are one of the world's largest industries, in 2011 the total of Global clothing exports was approximately 412 billion USD and textiles exports 294 billion USD (Fashion United). Developing countries in Asia have dominated both export sectors in the last decades, managing half of the world's textiles and almost three quarters of its clothing in the beginning of century (Allwood et al., 2006). These numbers prove the size of the sector and the capital as one of the factors that leads it.

Today the high-volume of production and consumption doesn't meet with the targets of sustainability, as the focus on social equity, ecological stability and economic profitability is still excessively low (Fletcher, 2014, Gwilt, 2014). Industrialization has led to a situation in which the connection between producers and consumers is minimal (Kaiser, 2008). This leads to consumers not knowing or caring about the products' supply chains and their environmental impacts in pre-retail processes, usually they see only the final product in a retail store and make a purchasing decision based on it. There is a need to change the model, shift the paradigm as mass production and overconsumption are no longer fashionable (Hethorn and Ulasewics, 2008). Sustainability in fashion is a broad concept and there is not only one right way to approach it, all actions during the products' life cycles are connected to each other, which can mean that the change for better in some sector can be seen as unwanted in some other sector but still be profitable sustainability wise (Fletcher, 2014). Consumers are in a significantly influential role of making this change a reality (Allwood et al., 2008), which is why the next sections explain in more detail sustainable fashion consumption and the problems that consumers might face in the endeavour of changing consumption patterns.

2.2.1 Sustainable fashion consumption

Sustainable consumption is highly dependent on consumers attitudes and decisions. According to Niinimäki (2010), the choices that consumers make nowadays are usually not related to their values, they are an irrational decision making process driven by the need of consumption more than the need for identity construction through the material garment. People continue purchasing clothes even though they know what environmental and social issues consumption rates cause. Offering more ethical products and services would increase awareness and guide consumers' decision making processes to a more responsible direction; get them thinking about a products' life cycle and consequences before

purchasing (Niinimäki, 2010, Dant, 1999). More ethical products means clothing that is made to last long; that is produced ethically and even possibly locally without much environmental damage by using materials that are recycled or eco-labelled (Niinimäki, 2010). One solution to shift this mindset and make fashion more sustainable would be production ways that create deeper commitments between consumers and garments (Gwilt & Rissanen, 2011). A new approach would be for the fashion industry to move closer to consumers, for instance in allowing them to take part of the products' design processes or customizing products to fulfill their needs better. User's engagement with product affects their attitudes and actions from use phase to it's end (Gwilt & Rissanen, 2011), as they tend to feel more connected and represented by them, and thus they are eventually seen as more valuable and worth keeping or taking care of.

Manufacturing and consuming fashion will always use resources as even if all textiles were to be recycled there is only so much that can be recovered, but this is why the current paradigm needs to be changed into a more sustainable process in order to be able to fulfill people's needs in the future (Hethorn and Ulasewicz, 2008) as outlined in the Brundtland's Report. In the ideal future paradigm, the ideal consumer buys or rents long lasting garments and second-hand clothing, pays attention to how new products are made, favoring only products that are manufactured responsibly, he/she repairs clothes, washes them less and in lower temperatures and finally disposes of used clothes in an appropriate way (Allwood et al., 2006). Being an ideal consumer takes more effort than just following today's practices, which may be one of the main current challenges for fashion consumers. According to Agins (2011) consumers have the power to determine fashion trends by their decisions, and a trend can become fashionable if enough people accepts it, thus shifting it to be mainstream trend when more people are following it. Same could be applied to adopting sustainable practices, when enough consumers shift to a more responsible way to consume, it can become a trend which one day would be a mainstream practice, a part of people's everyday life.

2.2.2 Current consumption paradigm

There are specific reasons why consumers don't act in an ideal way; some problems and barriers that guide their behavior. One factor that has significantly driven consumers towards unsustainable behavior is the system of fast-fashion. Fast-fashion companies have implanted a 'throw-away' attitude into consumers' minds by making clothes life cycles shorter and increasing the availability of cheap products (Gwozdz et al., 2013). Consumers don't think about environmental aspects when making purchasing decisions, price and style are more important factors (Niinimäki 2012), and it's not clear that all consumers understand the connection between clothing and their consumption habits with environmental and social impacts (Allwood et al., 2006). Niinimäki (2010, p.154) illustrates consumers' difficulty of making ethical decisions comparing clothes to food, for "food directly affects one's own health, and hence the choice reflects a benefit to the consumer self, whereas when purchasing clothes an unethical choice does not affect the consumer's own health so directly".

Another aspect that confuses consumers ethical decision making is that environmental issues have become a selling tool. Greenwashing is a term that expresses the negative side of sustainable marketing, because it is connected to companies and products whose environmental claims are not reliable, but still sustainability is used as a selling point through marketing (Gwilt, 2014). Companies can mislead consumers by covering their real practices and giving better image to the public using superficial sustainability actions. Sustainable products can be described in different manners such as "green, organic, sustainable, recyclable, eco-friendly, or even ethical" (Bide, 2009, p.577), which can confuse consumers even more. To clarify the situation there are currently a specific set of requirements and standards that suppliers have to fulfil in order to get a permission to produce under an eco-label, for instance The Global Organic Textile Standard (GOTS) and ISO 14000 standard (Bide, 2009). Making responsible clothing purchases today is not easy; the consumer has to be aware of the company's actions and its products' backgrounds to make the right decisions, but to gain this knowledge they would need to actively want to get informed and reflect upon it, which is not a common practice.

Only about 5,5% of young Swedish consumers are highly environmentally and socially aware and have adopted sustainability actions into their lifestyles (Gwozdz et al., 2013). To get consumers to make more ethical buying decisions eco-products' prices, quality and availability should be same as in other products, it has to be as convenient as purchasing anything else (Niinimäki, 2010). Which refers the current model of fast fashion, where the equation of cheap prices in the chain does not go along with consciously and minimized environmental impacts. Usually garments that are manufactured responsibly, taking care of environmental and social aspects are more expensive (Allwood et al., 2006).

Manufacturing garments in itself is a wasteful process, but the textile waste what consumers create due to their poor care and disposal routines is even a bigger problem (Gwilt, 2014). The next chapter will further discuss this problems created in the use phase.

2.3 Garment Life cycle

The life cycle of a product “refers to input-output exchange processes between the environment and the whole set of processes that entail the entire lifetime of any given product” (Vezzoli & Manzini, 2008, p.55). Fashion garments are considered to have a life cycle that starts with design, followed by production, distribution, use and end-of-life (Gwilt, 2014). It is defined as a cycle but most of the garments have a linear life, that stops abruptly in the end-of-life phase when it is discarded (Fletcher, 2014). As has been outlined, there are different approaches to tackle the sustainability impact in a garment's life, but this research focuses mainly on the latter two, consumer related practices than influence it. On the next figure (1) the life cycle division proposed by Gwilt's cycle.

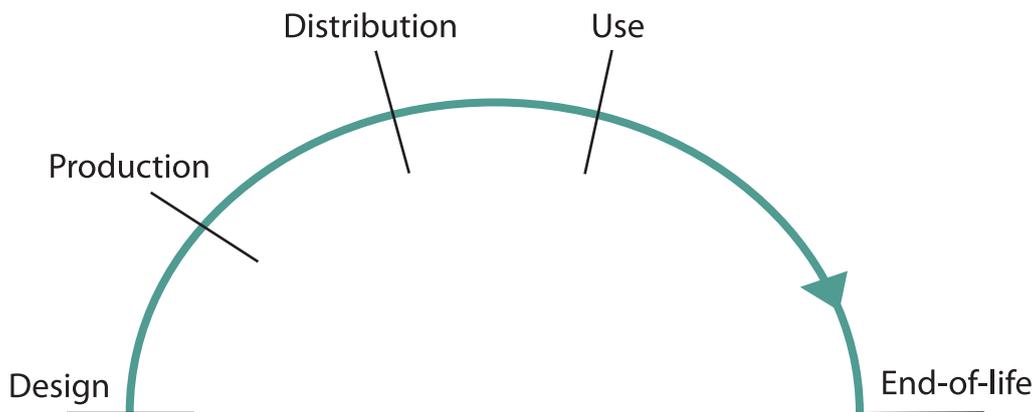


Figure 1: Life cycle of fashion garment
Own illustration

The life cycle assessment is very closely related to wardrobe metabolisms. A wardrobe metabolism refers to how the life of a garment unfolds while in the user related phases, that is from the moment it is acquired from a retailer or other sources until it is discarded or it is simply removed from the user's stock of clothing. Fletcher and Grose (2012) summarize the current wardrobe metabolism in the following figure (2), that is concurrent with the garment life cycle process. However garments' lives don't have to remain static, and on the next sections the main problems generated by the use and disposition phases are discussed, as well as the emerging initiatives that strive toward palliating them.

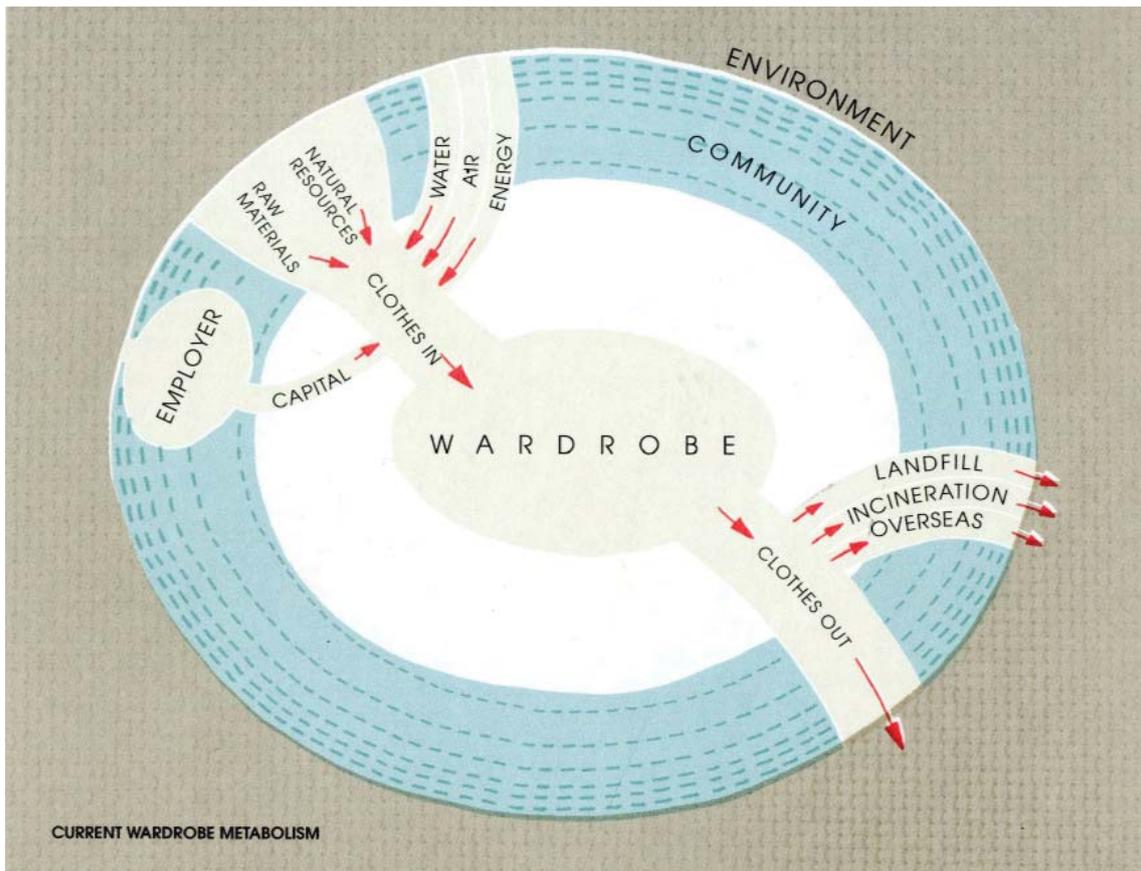


Figure 2: The current wardrobe metabolism
Fletcher & Grose, 2012

2.3.1 Use phase

The change towards a more sustainable consumption is highly dependent on consumers' attitudes and actions that can improve and extend their clothes life cycles. Different studies have shown that the clothes usage phase is the period creating the most damage to the environment (Gwilt, 2014). After purchasing a product a consumer becomes its owner, whose tasks are to wear it and to take care of it. The way people consume nowadays show that usually they tend to not take responsibility of their clothes as the garments are not regarded very highly due to the cheap prices, the similitude with other products and therefore their lack of meaning, which results in a lack of perceived value. It's not surprising to see people buying new jeans instead of repairing old jeans' broken zipper or buy a new top rather than wash the old one, just because tops are so cheap. This can be interpreted as the fact that a product's price partly defines its value for the consumer. It's easy to dismiss or not pay attention to the other factors that also create value for the product, for instance where it is made, who has made it or what is the material. The truth is that we take care of clothes better if those are somehow meaningful and valuable for us, for example with an expensive designer piece, a gift from someone special, your grandma's old clothes or those handmade by somebody close to you. These are just a few examples of things that can make product more valuable to its owner and contributes to a better "taking care of" level during the use phase. Garment's durability and longevity are also significant properties, which have been observed to make clothes' sustainability impacts smaller (Goworek et al., 2013), as well as contribute to its value perception.

Usage phase includes all processes from a consumer's perspective, from clothes purchasing or wearing to disposal. Today most of consumers create their own care and maintenance routines that best support their needs (Gwilt, 2014), which indicates that thinking about the environment is not usually the force that drives decision making regarding care, wash and maintenance procedures. It is also possible that users are not aware of how their actions affect both their garments and the environment, as they

don't know about the environmental impacts they produce or simply don't have enough knowledge or expertise to assess the best course of action during the usage phase, particularly regarding washing methods. That's why giving more information about the use phase is one of the main points that are being tackled right now by several sustainability driven organizations, such as seen with Marks & Spencer's 'Plan A', encouraging users to take a pledge to wash clothes at 30 degrees rather than at 40 or higher. However this still poses one of the main challenges for sustainable fashion as consumers are largely uninformed or unconcerned with it, and the channels through which this is being conveyed are too few and easy to overlook.

2.3.2 Washing Process

The Mistra Future Fashion research of Swedish young consumers sustainability attitudes and knowledge (2013) shows that the consumers' washing behavior is the same although their other actions and awareness of environmental impacts varies (Gwozdz et al., 2013). That means that consumers in general haven't realized how much laundry activities actually affect to environment. Each individual creates their own washing routines based on their own personal standards of cleanliness (Gwilt, 2014), for the frequency which what clothes have to be washed vary according to each person. For example when there's a small stain in a shirt some user decides to wash the whole shirt whereas other users will opt to wash only the stained part. Cleanliness has become an imposed need that can be linked with social and cultural values related to prosperity, acceptance and happiness (Fletcher, 2014).

It has been established how clothes washing and drying actions create the main environmental impacts (Jardine, 2012). Jardine brings up machines electricity consumption, particularly in the United Kingdom each washing or drying machine uses about 10% of household's total consumption. Instead of using drying machine, the laundry could be dried on a clothesline which would not consume energy at all. Consumption of electricity is not the only problem. Usually washing processes need a lot of water and at the same time toxic detergents pollute the waterways (Gwilt, 2014). The main problem of detergents is the harmful ingredients that they contain, such as petrochemical surfactants, whose low biodegradability affect to the ability to purify water and thus impact heavily on waterborne organisms (Fletcher, 2014). Washing is an active decision; laundering less often by fully taking advantage of the capacity of the washing machines could be one sustainable solution, which could be encouraged by having shared laundry machines in the community instead of having a machine in every apartment (Locker, 2008), which would also improve the waste generated from the machines as well as encourage community feeling and sharing (Tantaro, 2010).

Washing machines use same amount of energy and water during the washing process, no matter how full they are (Jardine, 2012), but since the current paradigm is owning a machine in every household, most of the times they are used without taking advantage of their full capacity, either by the necessity of laundering specific items or not having the knowledge of how full it should actually be to operate in it's ideal energy efficiency. Another significant fact is water temperature. The major part of washing machine's energy goes to water heating, and the electricity consumption problem could be reduced by using lower temperatures (Jardine, 2012). According to Fletcher (2014) every 10°C reduction in washing temperature can make washing machine uses 10% less energy. Adapting the attitude of using lower temperatures is not easy, because consumers have grown accustomed to use high washing temperatures, following the concept that water has to be hot to kill bacteria or in successfully removing stains or smells.

2.3.3 End of Use Phase

Following the same pattern of action as in the other consumer related phase, end of use performance varies and is dependant on each individual's textile and clothing disposal routines. The efficiency of these routines is thus also depending on users' interests, awareness and desire to reduce their waste consumption and environmental impacts. The high availability of cheap clothing in large quantities has

led to the current fast consumption culture, where purchasing clothes is easy and throwing them away even more so, another sign of the low perceived value of the items (Fletcher, 2014). Old and unwanted garments can be replaced by buying something new and can even result in buying two new pieces instead of just substituting the one disposed of (Gwilt & Rissanen, 2011). This unsustainable behaviour increases textile waste, which could be decreased in large amounts by reformulating clothes' life cycles and reusing products in different ways.

Life cycles can be made longer in several different ways; renting, buying second hand clothes and clothes repairing (Allwood et al., 2008) are good examples of actions that change garments' usual 'from wearing to disposal' route. Renting instead of purchasing opens the possibility to use clothing libraries and rental services' unlimited wardrobes without the necessity to own products. This responds to one of the tracks for changing the consumption paradigm from product oriented to service oriented businesses, where the consumer notion is transformed into a client-user notion. The transactions are not made by purchasing a product but by purchasing its use. Fletcher states that "what consumers need is a function, not a material product, and this shifts to a different way of thinking"(Fletcher, 2014, p.183).

2.3.4 Activating the Circle

This section is concerned with current proposals in order to bend a garment's linear life into a real cycle where users and businesses share a synergy within themselves as well as with each other, acting as a mutual enabler striving toward more sustainable consumption and use processes. The following figure (3) is a graphic depiction of how future wardrobes should look like in order to be more sustainable.

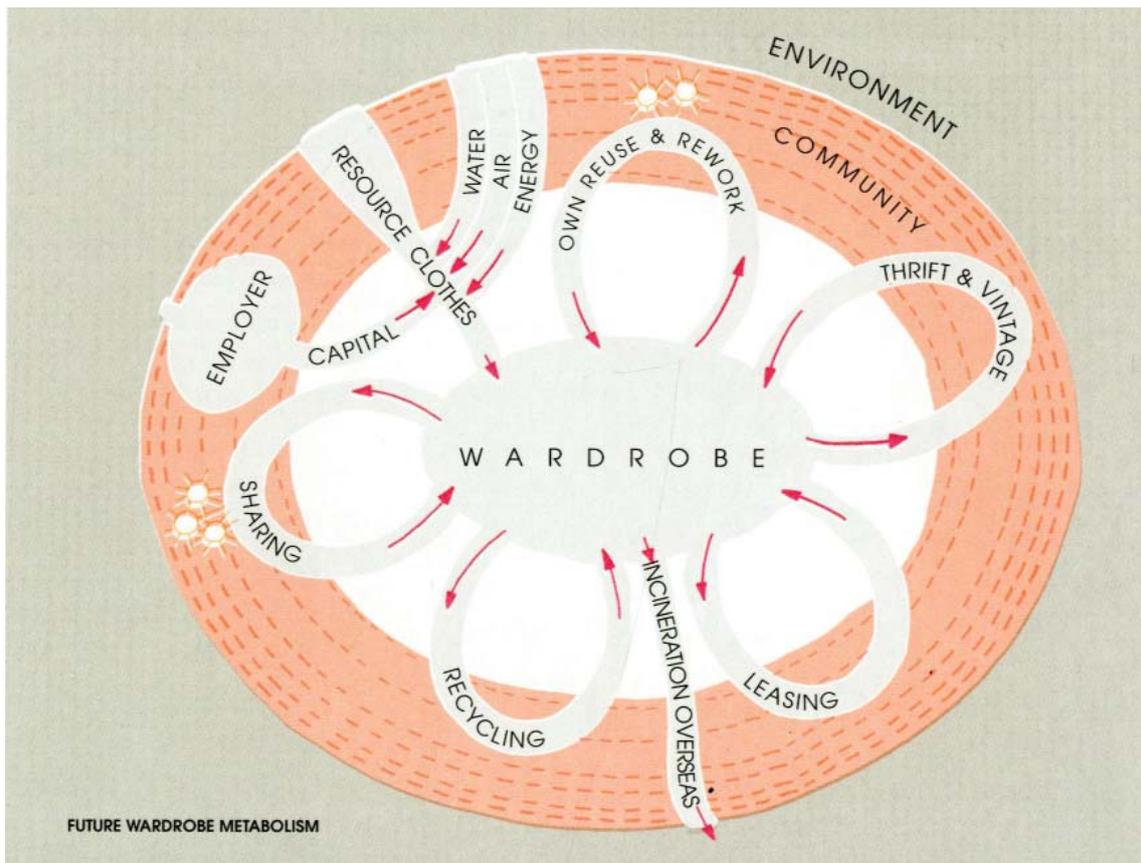


Figure 3: The future's wardrobe metabolism
Fletcher & Grose, 2012

Fletcher and Grose define this ideal wardrobe as "a place of 'dynamic equilibrium'; clothes are re-worked, shared and reused without constantly requiring a new flow of new goods and resources" (Fletcher & Grose, 2012, p.88). In it different strategies are portrayed: thrift and vintage or second hand

clothing, leasing, recycling, sharing and own re-use and re-working of garments.

Sharing can be done mainly by exchanging, while leasing holds a similar concept but it is based on a transaction where the customer pays for the use of a garment for a determined period of time. This is commonly done with tuxedos or similarly specifically event related clothing that wouldn't be worn more than once, as for example carnival costumes. However there are a number of clothing libraries that are reinventing this concept by holding a user membership that grants access for the customer to an extensive number of garments of all kinds, from everyday clothing to special pieces. In this system the consumer is a participative user and returns the clothing after a previously specified period of time, for example in *The Wardrobe*, one such initiative situated in the Swedish School of Textiles, the garment leasing time is three weeks, after which the user returns the items and can get others in exchange for another equally lengthened period. Recycling is an option that should be sought only when the garments are no longer fit for reuse or upcycling options because of the environmental impact necessary in the process, that is much higher than in the other options. Second hand clothing, re-work here defined as upcycling, and sharing in the form of swapping are discussed further as are the most common activities, as well as the more developed in terms of diversity and accessibility, for "sustainable consumption strategies need to be accessible and affordable, and complementary to existing lifestyles in order to encourage participation" (Luckins, 2010, p.51).

2.3.5 Second Hand, Vintage

People have always worn second-hand clothes in the sense that it is not a new practice, but in the 1990s it became popular as a part of a fashion trend, which led to second-hand shops openings in big cities all around the world (Calefato, 2004). Donating is an action that strongly relates to second-hand clothing. It is an excellent way to increase the life cycle of garments that are in good condition. Donating clothes to charity is one of the most popular routes to disposal clothes (Gwilt, 2014). Charity organizations such as Salvation Army sell about 25% of the donated clothes in their retail stores, while the rest of them are either sold per kilo on a commodity market abroad or recycled (Gwilt and Rissanen, 2011, Allwood et al., 2008). The fact that second-hand clothes' quality has to be good to end up in the stores explains the rather small reselling percentage (Gwilt and Rissanen, 2011). Usually people would rather donate products that are branded or expensive and throw cheap clothing away, because they keep products more valuable and durable for longer times and thus have more chances of being donated than a low-quality garment that would not be good enough for donating (Fisher et al., 2008). The value of used clothes and defining what is waste and what is not is difficult to define, for the perceptions of quality and value are subjective, for someone a product can be a treasure whilst for someone else be only a piece of rubbish (Gwilt and Rissanen, 2011). However 'vintage' or second hand clothing possesses an allure that most new fast fashion garments don't: meaning. The garments have been previously owned and act as a bridge across time that connects the user with a previous existence, and this connection is particularly powerful in cases where the user knew the previous owner (Calefato, 2006).

2.3.6 Swapping

Another key action that reduces waste and extends products' lives is swapping. To swap, according to the Collins dictionary of English, is "to trade or exchange (something or someone) for another", while swishing refers to this trade but only in garments, shoes or clothing items. As a disposal method swapping is not a new activity, for exchanging clothes between friends and family members is common, and especially regarding children's clothes as they are easy to be "passed on" and tend to still be in good condition when the child outgrows them (Fisher et al., 2008). Nowadays the idea of swapping has been further developed, there are big swapping events to exchange your clothes with others in almost all major cities and also on the internet through online swapping sites. Swapping clothes can be seen as an easier way to move products than by selling, because it doesn't necessarily involve a monetary transaction (Albinsson & Perera, 2009). The main reasons that drive people to participate in this events are to do something good with clothing that they no longer wish to keep, to satisfy the need to purge and

organise their wardrobes and to extend the lifespan of the self and the garments, with issues related to the person's self concept (Albinsson & Perera, 2009). By exchanging clothes participants also engage in a transaction of meaning even more powerful than the one driving the allure of vintage clothing. While purchasing second hand is done through an exchange based on monetary value, in a clothing exchange the currency is meaning and perceived value. This is so because the exchanges create a sense of community (Albinsson & Perera, 2009), whether inside the venue of an actual event or through an online, virtual form of community, where the participants give something of their own in order to acquire somebody else's.

The clothing exchange system allows participants to keep up with trends, cleanse their wardrobes and feel sustainably responsible at the same time even though it may have not been a primary reason to engage with the practice. In the absence of available clothing exchanges some participants would either donate the clothing and buy new items or else throw them away (Albinsson & Perera, 2009). This is also in accordance with the fact that even though most of the clothes are fully recyclable, in most cases research has shown that users are not aware of the processes or possibilities for fabric recycling (Fisher et al., 2008, Goworek et al. 2013). The main reason for recycling is to reduce waste, but it also serves the purpose of saving resources, for "even the most technologically sophisticated and energy-intensive processes of shredding fabric, reclaiming fibres and re-spinning them into yarn uses less energy than the production of new items" (Fletcher, 2014, p.122), but as long as the general public is not aware of the possibility of recycling and its advantages the amount of clothing ending up in landfills will keep growing.

2.3.7 Upcycling

The term upcycle was first brought up by Thornton Kay in 1994 as opposed to previous 'down-cycling' practices, where recycling materials resulted in a product of less quality than the original. Upcycling thus was born to define the opposite, and in fashion it is referred to as a process where by repurposing or reusing materials into fashion garments the resulting garment is of equal or higher value than the original (McDonough & Braungart, 2002), through craftsmanship and design (Cassidy & Li-Chou Han, 2013). Since then many brands have arisen that sell only products made out of waste materials, such as Vahø, Freitag or Junk Styling. The first two commercialize specially designed bags made out of still useful discarded materials, while the latter refashions textiles and vintage clothing into new up-to-date garments. Many celebrities have seen to support these initiatives with the appearance of high-end designer brands that upcycle textiles in clever, original and fashionable ways (Cassidy & Li-Chou Han, 2013).

Upcycled clothing has a much lower environmental impact than production with new fibers, using from 10 to 20 times less resources as it is only concerned with collecting items, sorting and reselling them (Fletcher, 2008), even though the energy and resources for repairing or upgrading the items should be added, this can also be done mainly using other textile waste materials such as unwearable garments or post-industrial waste supplies. In terms of textile waste two different main sources have been identified; post-consumer waste and post-industrial waste (Cassidy & Li-Chou Han, 2013). Post consumer waste includes all discarded garments and textiles of an individual, while post-industrial waste or pre-consumer waste enclosures fabric, garments and other supplies necessary for production of clothing leftovers that have not been distributed or sold, and hence have not fulfilled either the linear or garment life cycle.

Even though it was common practice before, when the available commodities were much scarcer and more difficult to obtain, today garment's repairing and altering occurs in much smaller scale comparing to previous generations (Gwilt, 2014). Users' skills and manners have changed, and the combination of the lack of knowledge to repair their clothes, lack of the needed tools for repairing, and also the high costs in professional repair shops (Fisher et al., 2008) lead to a disposal decision instead of to a reuse or repurpose scenario. Nowadays most consumers would buy a new product instead of repairing an

old one, for it is usually easier and cheaper. Textiles and clothing reuse, repairing and remaking are excellent actions to reduce waste and continue products life cycles (Fletcher, 2014), and in engaging in these actions users have the possibility to give a totally new life to their garments.

Clothes upcycling is therefore an effective way to reduce waste in keeping garments active for longer periods of time (Gwilt, 2013). Companies as well as consumers themselves can upcycle garments giving them a reformed or totally new life and at the same time configure new meanings in the process of getting involved with the garment and opening the dialogue for added value perceptions. Remaking or refashioning existing products is at the same time challenging and rewarding, and there are numerous blogs, publications and online communities that prove that even though repairing habits have been very low in the last decades, there is an interest to regain these abilities that drive the huge do-it-yourself (DIY) movements.

The next figure (4), by Alice Payne (2011), graphically shows where upcycling should stand within the linear life of a garment to actually turn it into a cycle, as opposed to ending its life after the first use phase. Another option for garments beyond repair is what is here described as downcycling, that as mentioned before refers to the repurposing of elements in fashion items into other purposes of less value than the original product, such as using textiles for car insulation or recycle sneaker soles into playground covering.

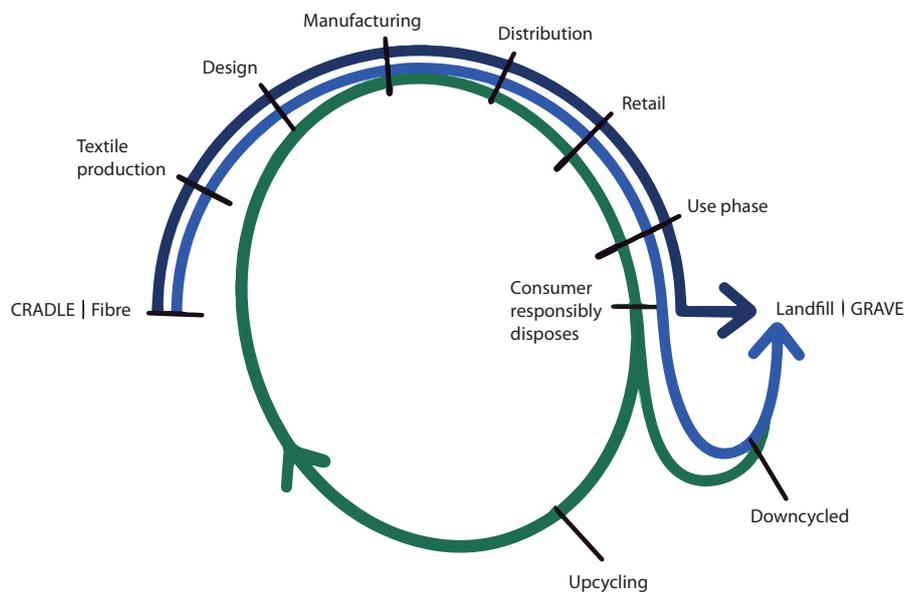


Figure 4: Upcycling within the linear life of garment
Alice Payne, 2011

2.4 The Business Perspective

This thesis is focused in the user perspective regarding fashion and sustainable practices, however a light incursion in the main characteristics of the fashion business industry might be taken into account, for they are continuously influencing consumer choices, values and beliefs. In the current paradigm of fashion consumption, the traditional business model is still the norm, where companies are focused on selling more through effective marketing campaigns (Carbonaro & Goldsmith, 2013) and are only concerned with the purchase process, how to influence decision making in shopping, how to appeal customers and how to produce more revenue while keeping prices low, one of the key elements of fast fashion. This approach contributes to the so called 'culture of consumption' that has become, as discussed, one of the key issues regarding sustainability (Siegle, 2011). A Business Model can be defined in many different ways depending on the scholar (Tece, 2010) but for the purposes of this thesis it will be defined as "the rationale of how an organization creates, delivers, and captures value" (Osterwalder & Pigneur, 2010, p.14), as well as how a company profits from it.

However this is slowly, but surely, changing. The proliferation of CSR initiatives is proof that companies have realized the value in investing resources towards social and environmental benefits (Goger, 2013). This not only contributes toward a more sustainable future, CSR is also beneficial for the companies financially on the long term (Yunnus et al. 2010), as it increases the willingness for stakeholders to contribute to the company in different ways, from consuming to investing or working for it. This can be seen as a reaction to the several sparks that are lighting up in different areas and places of the world that advocate for change, as for example The Uniform Project, and that are inspiring people to do precisely that, change and be more self aware. Consumers have begun to realize more is not equal to better when it comes to fashion (and more), and are starting to look deeper into their wardrobes looking for garments that are not only fashionable, but also meaningful or that at least, don't have a negative imprint, environmental or otherwise, attached to them, such as coming from a sweatshop would be. Alongside corporate policies 'sustainable garments' have become more popular and key players of the industry, like H&M, are launching campaigns focused on them. However, this is not innovating from a business model perspective, but consists on applying the same guidelines to a different marketing approach while still focusing on producing more revenue. CSR has been an improvement to the traditional business model, where social or environmental concerns were nonexistent, but it is not enough. As found in Teece, Shirky identifies the provisional nature of business models, stating how improved models are bound to replace previous ones by incorporating new technologies or organizational innovations (Shirky, 2008, in Teece, 2010).

Even though the current business models will eventually become obsolete together with the extinction of materials, the fashion industry is resilient in change because of the crucial importance it has for all parties involved: from design until production, the industry accounts for 2.560 trillion dollars worldwide in 2010 according to MarketLine, and consequently employs millions of people in its process. However the initiatives for change are growing larger and more numerous, and even though they may not radically turn the industry, they are certainly influencing it, as shown by the acknowledgement of the importance of social and environmental issues through CSR.

2.4.1 Existing alternatives

The most persevering alternative businesses that are slowly contributing to a more sustainable consumption of fashion are second hand clothing stores, both charity or privately run. They are to be taken note of as second hand dress is defined as "the only tangible sustainable fashion commodity currently available" (Luckins, 2010, p.13). The business models used are completely different to a traditional enterprise's, and they represent one of the viable alternatives to the current overconsumption of clothing. Studies have shown in different countries how the amount of clothes purchased is higher to that of the amount of clothes that are discarded in a particular period of time, which renders to the fact that clothing is being kept in closets but not worn (Fletcher, 2014, Luckins 2010). This fact, aside of pointing out how meaningless consumption rates are in the long term, is also one of the factors that has contributed to the increased popularity of second hand and vintage clothing (Cassidy & Li-Chou Han, 2013). Charity stores are the most benefited by this as they source their products mainly from donations, and as well as private stores sort out wearable garments as they are and textiles or clothes that need improvement that are either repaired or transformed to be suitable to use (Cassidy & Li-Chou Han, 2013).

Taking into account the importance of second hand dress as sustainable fashion, as well as the need for business models to be updated according to new technologies, it is not surprising that several enterprises have arisen that are using the advantages of nowadays resources through the internet as well as in shipping in their sustainable fashion initiatives. These are companies like 99 dresses or swapstyle, online swapping or swishing sites. Exchanging clothing has become popular and regular meetings are being held throughout the world where participants bring in their no longer in use garments and take home someone else's'. This growing sector, as detailed above, encourages one of the key practices of sustainable fashion, the reuse of garments. The procedures tend to be quite similar in all online sys-

tems, where the users exchange garments for the site's currency, as for example buttons in the case of 99 dresses, and viceversa. This sites can either monetize from the users by implementing a small membership fee, from advertising and sponsors and finally from organizing swapping events, for which attendance is usually bought.

2.5 Summary

Nowadays fashion consumption paradigm is driven by the constant need to update the self and the high availability of cheap garments due to the fast fashion system, which also encourages consumption with marketing strategies and the constant changing of garments within a season. Sustainable behaviours are slowly growing but the mainstream consumer is not concerned with the environmental aspects of his or her behaviour, style and price are the main decision drivers in making a purchase, and the use of sustainability as a selling tool, whether or not truly referring to a sustainable product, has deepened the gap between the consumers and their attachment to the sustainable practices morale.

With these consumption practices users are purchasing much more than they actually need, resulting in garments being kept in wardrobes and thus not engaging in what should be the normal life of a garment. In a garment's life cycle the main environmental impacts are caused during the use and disposal phases, both of which are the user's responsibility. Generally, the washing and drying habits adopted by consumers are wasteful in terms of energy usage through using excessively high temperatures and not taking full advantage of the capacity of the machines, as well as in the use of detergents that have very low biodegradability and affect later capability to purify water. These activities are exacerbated by the lack of awareness of how the practices affect the environment, as well as each individual's sense of cleanliness, which drives thy to clean garments more than it is necessary and with less garments each time, which also aggravates the energy consumption overall.

Regarding the disposal phase, there are several options available in order to discard garments that are no longer in use or usable, but there is also a huge lack of awareness regarding them, especially when referring to recycling processes and available infrastructures. One of the most popular forms of garment disposal is donating still wearable garments to charity, which are then sold on second hand stores or to developing countries, thus reactivating the life cycle of the garment and avoiding possible consumptions of new garments. Consumption of second hand or vintage clothing has become popular, and stores marketing them are becoming specialized and displaying garments in ways that make them more attractive, as opposed to the classic thrift store where all garments are jammed and the shopping experience is not attractive to everyone. Other forms of responsible disposal and reconsumption of garments are upcycling practices, which allow garments to be constantly updated, repaired and thus reused, and exchanging or swapping events and communities, where inactive garments that are being stocked in closets are exchanged, allowing them to have a new life and avoiding for the entrance of new garments in the wardrobes. However these practices are not yet mainstream and it is not clear the reach they can achieve, for which the authors have decided to do further research through action and secondary research, in order to assess the availability of swapping events, the impressions current attendants have and how accessible are upcycling practices to the average user.

3. Methodology

In this section the methodology used to conduct the study is explained in detail, incorporating action research and secondary research. Action research was chosen as the guideline for the design of the study in order to allow the authors to relate to the participants of the swapping events and engage in their practices as well as to be able to further relate the theoretical knowledge acquired in the previous section with the results obtained from observation, interviews and desk research. The latter was conducted in order to assess the availability of sustainable practices and guidelines for the average consumer, and how accessible they proved to be. The specific characteristics of the action research are specified below, as well as the personalized study the authors designed.

3.1 Action Research

Action research is a diverse and broad qualitative method whose specialty is to connect theory and practice, researchers and people (Avison et al., 1999). There is not only one right way to implement it as it varies according to different fields and practices. One of its main features is that the action researcher takes part of a field study and cooperates with members of a given society to determine a problem and eventually to generate a solution for it (Bryman, 2012). The approach is based on Kurt Lewin’s theory of experiential learning cycles of planning, acting, observing and reflecting in real life situations (Lewin, 1946). The cycle of these four steps would continue to another flow of similar cycles showing the evolution in thinking and action that developed both the research and the results (figure 5) (Lewin, 1946).

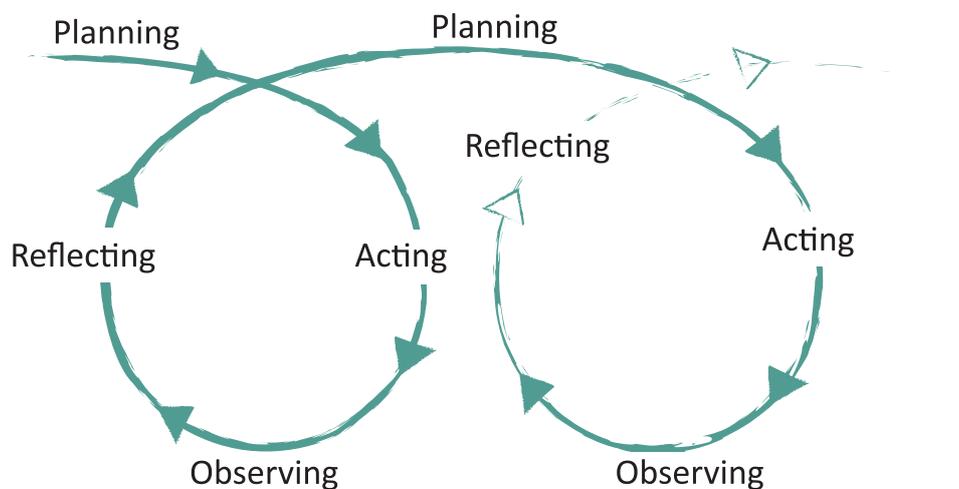


Figure 5: The cycle of action research
Based on Kurt Lewin, 1946

The term action can be a bit misleading, because the research consists in more than just actions. There are four kinds of action research types depending on its focus: action research, participatory action research, action science and action learning (Lau, 1997). All these processes includes “data gathering, reflection on the action as it is presented through the data, generating evidence from the data, and making claims to knowledge based on conclusions drawn from validated evidence” (McNiff & Whitehead, 2002, 16). Data can be collected in different ways by using methods that will provide the best data in order to solve the identified research problems, and both quantitative and qualitative data are part of the action research method (Bryman, 2012). A range of options offers researchers the possibility to select unique strategies in addition to classical and emergent approaches (Lau, 1997). This research method is commonly used in business and management’s field researches (Bryman, 2012).

3.1.1 Planning

The first step of planning is to determine the idea of the research and examine it carefully thinking about what and why the research should be done, and how the practice could be evaluated (Lewin, 1946, McNiff & Whitehead, 2002). One important part of the planning step is to create a framework and to find a type and focus for the research. The framework should cover the plan of first action step, but also give a general overview of whole research (Lewin, 1946). The proposed framework consists of four elements; the type of the research, theory and assumptions, the research process, it's scope and participants, and the style of presenting (Lau, 1997). Planning creates the base for the next step of acting.

3.1.2 Acting

Action research guides researchers to experiment and attend to real-life situations and to reflect their perceptions in relation to the theories (Avison et al., 1999). This second step, acting, starts the empirical part of the research by executing planning step's guidelines to collect data and evidence of the research area (Lewin, 1946). Interviews and discussions are possible ways to collect data, but the emphasis of the research is not only concentrating to what the participants' say, it's also about observing what they do (McNiff & Whitehead, 2002, Avison et al., 1999). The action step of the process offers the researcher the possibility to test their theories with people in practice, to make observations and collect feedback of participants' experiences, and based on these findings they can modify the theory and also try it again (Avison et al., 1999).

3.1.3 Observing

Observing step follows the acting step, and it is a way of gathering data together (McNiff & Whitehead, 2011). This phase also includes analysing the data, gathering findings and put them together in a cohesive way that allows the researcher to overview all the information and respond to it in the reflecting phase.

3.1.4 Reflecting

Reflection is the most important part of the research process; it brings the previous steps together, including findings and learnings (Lau, 1997). Reflection is closely linked to the acting phase, whilst theory and practice constitute an inseparable pair always nurturing each other, with both sides interconnected during the whole research cycle (McNiff & Whitehead, 2002). The step of fact-findings has four functions; it should show what has been achieved estimating the implemented acting section, give the researcher the possibility to learn and find new perspectives, serve a base to the next step of planning and amending the overall plan of research (Lewin, 1946). When the cycle of action research comes to an end the final step of reflecting should present the new knowledge, including the possible understanding that has been created as a by-product during the research process (Lau, 1997).

3.2 Customized Action Research

In conducting the research the authors defined a starting point for existing solutions extracted from the future wardrobe metabolisms figure by Fletcher and Grove (Figure 3). During the development of the theoretical framework the different actions users can take in order to activate the garment life cycle have been identified: reusing and reworking, sharing, recycling, leasing and purchasing/donating second hand clothing. The use of the latter has been researched more extensively in terms of the rationale behind its increased popularity, its characteristics and use advantages. Leasing is not yet a very common activity, as previously outlined, and its use is highly dependant on having the appropriate infrastructure for it, that being having clothing leasing services available and that they contain

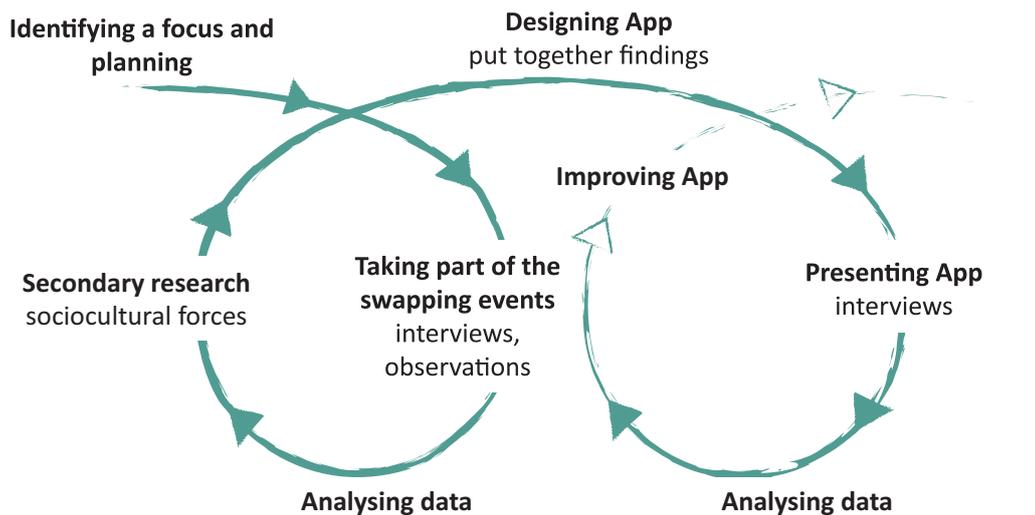


Figure 6: The cycle of used action research
Own illustration

garments suitable to the user's needs. As mentioned before, the authors have identified one such service available in the locality of Borås. 'The Wardrobe' is a growing initiative but it does not hold enough memberships or it is not yet sufficiently well known for a research study done based on its practices to be representative. In a similar matter, recycling textiles is not a very common or well known practice, so even though the authors have included it in a project proposal in order to ask the participants of the second interviews whether having a tool that made it accessible and relatively easy would encourage them to recycle clothing or not, it has not been the core of this research because current studies have already shown how infrequently it is practised.

Thus, from the proposed areas of activating the life cycle of a garment, sharing in the form of swapping was taken as the first step in order to further understand and develop a concept that appeared viable from a consumer perspective, as well as for a sustainable fashion initiative, and less researched than the reencountered popularity of second hand stores. Even though it has been identified the fact that there are swap meetings being held throughout the world, the authors were not savvy to this concept and therefore grew more interested in this practice. The other factor that contributed to the decision was the local availability of swap meetings or clothing exchanges. In the duration of this thesis research two separate events were to take place within the city, one organised by the student union in the Swedish School of Textiles, and therefore oriented towards textile students in the school, while the other was to take place at Brygghuset, a local space dedicated to the community that holds events of all kinds, from concerts to gothic conventions. Also in accordance with the research questions an investigation conducted through second desk research, framed within the action plan research, was incorporated in order to explore the practices related to Upcycling practices, concentrated mainly on the availability of resources and communities in social media related to it, and taken as an expression of popular culture practices.

For the purpose of this research all the interviews were conducted within the two locations and in English as a conveying language. The selection of the participants for both interview rounds corresponds with purposive sampling, which is a non-probability sampling where the aim is to strategically select the participants that are relevant to the research (Bryman, 2012), for ethical reasons the interviewees are kept anonymous. The following figure (6) depicts how the research was divided and planned within the frame of action research.

3.2.1 Focus and Planning

In the first stage of the research the authors created the framework for the research, consisting of a theoretical framework review regarding user related sustainability issues, as well as finding the initiatives available locally that coincided with the area of the research in order to corroborate the possible findings as well as the importance of the chosen research topic. While examining the different alternatives that could be taken from the user in order to dispose or reinvent their garments, a concept project to overcome the boundaries identified during the theoretical framework review was outlined as a side line of action. The plan of the first action step was also done by signing up to attend both swapping events as well as developing a semi structured interview (view appendix 1) that collected on one side quantitative data referring to the age, gender and amount of previous experience in exchanging clothes and on the other side qualitative data regarding the preferences of each individual for buying/selling or exchanging, the reasons why each individual was engaging currently or had engaged before in clothing exchanges and whether they would find a platform enabling more comfortable swapping experiences appealing or not, as well as their personal thoughts on the project was also outlined to be collected through the interviews. The authors also agreed on the different elements that would have to be observed in the event, dealing with participant's attitudes and behaviours as well as with the events in themselves, how they were conducted and for what reasons.

3.2.2 Acting

When participating in the events, the process was divided in two phases: the first consisting in interviewing people when they brought in the clothes they would like to exchange, and the second consisting on participatory observation of how the event was conducted, each author taking personal notes and reflections about the whole process as well as casually enquiring the organizers about how popular the events were and the reasons for planning them. The interviews had to be conducted at the beginning as it was assumed that it would be when the participators were most calm and free to engage in conversations with the authors, whilst later on, during the actual exchange, they would focused on finding appropriate garments and would not be as likely to welcome conversation that might distract them from the purpose of their visit. One of the authors took part of the actual exchange and another made observations on the background.

3.2.3 Analysing data

After attending both events the authors shared the different observations that were made as well as the results from the interviews. Then the findings from the theoretical framework were compared to the data gathered during the events and the authors agreed that clothing exchanges constituted a key point in fashion sustainability related to user practices, but were not enough in order to tackle the different boundaries preventing users to behave more sustainably, especially because their reach, though increasing, is not very large yet.

From the results of the theoretical framework, identifying upcycling practices as another of the key practices to enlarge garments life cycles it was decided that some secondary research was to be made in order to gain some insight on different aspects regarding what actions do users engage in to strive toward a more sustainable behaviour related to fashion consumption that would complement clothing exchange meetings and the already existing practices of buying and donating second hand clothing.

The secondary research was done by browsing different sites by introducing key words in search engines for Youtube video tutorials, blogs, swapping sites as well as other different social media or related sites that dealt with clothing exchanges and/or with DIY practices or other similar end of use practices regarding fashion garments that were accessed through the searched pages.

3.2.4 Reflect/ Model development

After summarizing the findings and inputs gained by the events and the secondary research, the authors found the main user related problems that affect the environment, as well as the different practices that can be done to overcome them that were identified during the theoretical framework, and by cross referencing with the action research the popularity and reach of such practices, focused on developing a possible solution for user engagement, which represents one of the main issues in sustainable practices. Together with the lack of awareness and lack of user engagement, the other main issue was found to be lack of infrastructure. For example recycling practices are not very popular regarding textiles, while clothing donations are far more popular because there are pick up services as well as donation containers in cities. From this process a new project integrating responses to the main problems that were previously identified by the theoretical framework, the attendance to clothing exchange events and the secondary research was outlined. From the secondary research the authors gained insight into what current actions consumers voluntarily take to extend their garment's lives and which are the most popular, and integrated them into the project.

3.2.5 Presenting the Model

Once all conflict points were identified, and a combined solution developed, the authors proceeded to graphically develop a display of the project. This was done in order to be able to test what the interviewees felt and thought regarding the main problems that the authors had identified, expressed in the project in the form of counteractions to help solve them. With the graphic display a semi structured qualitative interview was designed (see appendix 2) in order to determine how the users would react to the project, what were their views, thoughts and general impressions about it as well as what improvements would make it more suitable to their needs. The interviews were conducted by both of the authors at the same time in order to better reflect on the results later on.

3.2.6 Analysis

With the information extracted from the conducted interviews the authors proceeded to analyze the response to the project regarding the key points of providing an enabling platform to make recycling, swapping, upcycling and laundering sustainably an accessible possibility, as well as the workability of the project itself. The main conflict points were identified and analyzed together with the previous findings, from the first loop of the action research to be contrasted and compared.

3.2.7 Reflection

After processing all the input received, the authors modified and improved the project and reflected on the strengths and weaknesses it contained and how they could be further developed. Then a final version of the project was outlined as a result and a proposed solution out of the identified problems related to user and disposal related conflicts regarding sustainable fashion, of which the authors now had an improved understanding due to the processes carried out during the research.

3.3 Method validity and reliability

Action research as a method has its advantages and its flaws. First is the fact that since action research can be conducted in many different ways, evaluating it as a whole proves difficult. However the main advantage of it is that while other methods might concentrate on creating false proof knowledge, by conducting action research it is forms of practice that are developed (Gustavsen et al., 2013), and thus they are always intertwined with reality, feeding from it and giving feedback, interacting. This implies that it cannot only exist in an academic dimension, for it needs to operate based on actions, observa-

tions and experiences more strongly than in theories and assumptions. This, even though an advantage, also produces the main controversy of action research, since it is developed in a particular setting it is dependent on the place, context and subjects that are part of the research (Kemmis, 2013). Nevertheless, when conducting action research one of the most important processes consists in continuously evaluating and modifying the research, which reveals how it can always be improved and reevaluated (Koshy, 2009). Since the authors realized the challenges this method might pose, secondary research was also used in order to further validate and contrast the results obtained. However the answers to the research questions were partly outlined during the theoretical framework development, and contrasted and completed through the action research and secondary research that, as outlined in this section, help develop practices born from theoretical knowledge.

3.3.1 Reliability and replicability

Reliability is used to describe whether the results of a particular research or study can be repeated (Bryman, 2012), while replicability is the ability to recreate the same study. In the conducting of this research the authors have outlined and attached every process of the study, and thus it would be possible to repeat the study by following the different processes. However, as indicated before in the main challenges of conducting action research, since it is dependant on a specific time and place, the study would likely have to be modified or revised accordingly depending on when and where it was to be conducted. Also the fact that reality is not a static entity and people's views and practices change constantly greatly affects the possible results of a replication of the study. This is nevertheless part of conducting action research, and would be equally challenging in a different study.

3.3.2 Validity

Validity refers to the correspondence between the study and the reality, both within the study as well as in relation to the actual research. For the purposes of this study external validity is especially relevant, as it deals with the ability of the research results to be generalized into a wider context (Bryman, 2012). By only conducting action research the external validity can be questioned, but since this is an issue the authors anticipated in the first stage of the research, secondary research and a review of the theory available was done in order to cross reference the specific areas of interest and the boundaries identified. This implies that even though the initial scope of the research was done locally and therefore might have not applied to wider sections of Sweden or larger settings, the support of the theoretical framework and of the desk research suggests the findings of the study could be applied to larger contexts.

4. Findings

In this chapter the authors present the findings of the research: qualitative and quantitative data of interviews, observations in swapping events and the findings of secondary research.

4.1 Data collection

The data was collected from interviews and observations in swapping events, secondary research exploring the current popular culture elements regarding responsible fashion, the exploration of existing theories and studies of the use and disposal phases of garment's life cycles, and interviews conducted in presenting the AppCycle project where all the identified practices and needs are integrated in a platform. The authors took part of two swapping events in Borås; Klädbytdag in Brygghuset on the 5th of April and Klädbytdag in the Swedish School of Textiles on the 15th of April. They became acquainted with the swapping events operating principles and interviewed in total 20 event participants aged from 19 to 60, where 19 of the interviewees were female and one male. By interviewing participants the authors sought to survey their attitudes and interests towards swapping and technology utilization procedures of the clothing exchange.

4.2 Observations

The first event was organized in Brygghuset by the association Naturskyddföreningen, the Swedish Society for Nature Conservation (SSNC) in English, that deals with environmental and social problems both in the country and abroad. Every year they organize one or two such events in Borås, and according to the responsible organizer in site every time they organize an event the number of participants increases. It is an important remark to state who organizes the event because the setting and participants vary accordingly. In entering the premises to drop in the clothes for exchange in the first event, a path of fashion sustainability related facts greeted the participant into the venue. They were stating how much water was needed to produce a certain piece of clothing or the amount of toxic waste introduced in the environment in its production. There were also signs stating how laundering affects the environment, and many participants took note of these signs, especially while waiting to enter the event as well as when leaving the venue.

The second event was organized by the student union section in the Swedish School of Textiles, TEXAS, and conducted in the premises of the school. There some special decoration directed to embellish the furniture needed for the exchange, mainly consisting on fabrics wrapped around tables and pillars. There were around 5 people working to ensure the garments were on the racks and returned to the tables in case they were not chosen to take home, and they continuously kept the place tidied.

On both events the procedures were quite simply separated into three stages: first the clothing drop, where the garments were examined to confirm they were in good enough condition and the participant received a ticket for each piece, to be later used as currency to take some other pieces home. Second, in the established time for the event, access was granted to the participants and they hurriedly entered the venues and immediately started to search for suitable pieces. Third, after the search and decision of what to take each participant went through a cashier of sorts that counted the items and collected the right amount of tickets in exchange, as well as provided with bags to carry them if necessary. On the first event there were no fitting rooms, and the clothing was organised in hangers and neatly folded in tables, but there was no clear classifying criteria. On the second event though, the venue presented a sort of shopping experience. The garments were divided by type, jackets, shoes, t-shirts, dresses, etc. And some star items were presented in display areas. There were also two trying rooms that people shared in order to be able to try more garments and faster. This type of organization made the participants take more time in walking around and checking all the sections, while in the other event participants acted more randomly by quickly overseeing every rack so as not to miss anything.

This reactions showed that participants acted accordingly to the setting of the venue, on the first one even participants who went to and left the venue together did not pay much attention to what the other may be checking, but in the second event there was more interaction. People were seen to compliment each other's choices, as well as suggest different garments or styling options for the chosen pieces. Participants were also more friendly with each other, perhaps because of the closed nature of the event, that even though it held people that did not know each other, all were students and might therefore be more trusting and open to the other members of the exchange. The second event was more corresponding to the community feeling created by swapping events identified during the theoretical search, but it held no sustainability related theme past the characteristics of any clothing exchange. On the first event, before leaving the venue the organizers offered some booklets on sustainable fashion as well as a short related test that participants could fill in in order to learn more about it, and win a book called Green Design as well as take home some sugar free candy.

When conducting the interviews most participants were quite open to give in a bit of time and thought even though they were not native English speakers, but some refused to participate due to time or language related issues. When interviewing them they were enthusiastic about the doing something good to the environment by participating in the exchanges, and most of them were especially enthusiastic about the fact that their clothing would have a second life, for throwing away items that were still wearable was a rejected notion for two main reasons: it was a waste of the initial resources they invested in buying them, and by having the garments they had grown to like them and felt quite sad about them not being able to be worn anymore, even though they did not personally want to keep on using them.

4.3 Interviews

Two different kind of interviews were conducted in the research. One was made during the swapping events in order to gain insight into the kind of participants the events attracted, their motivations in joining in and their impression of the whole process, see appendix 1 for the detailed question guide. The second type of interviews were focused on collecting the impressions of the interviewees regarding sustainable practices and their availability, see appendix 2 for detailed guide questions.

4.3.1 Swapping events

The group of interviewees consisted of 20 swapping event participants aged from 19 to 60, 19 of the interviewees were female and one was male. Most of the respondents were from Sweden, but in addition to them there were also people from other nationalities such as from Poland, Austria, Honduras and Finland. Through the interviews the authors gained insights about participants' attitudes and experiences about swapping.

Figures 7 and 8 present interviewees' experiences of swapping events. For 65% of the respondents swapping events were familiar and they had participated in some events before, Klädbytdag in Brygghuset or the Swedish School of textiles (Figure 7), some of them, six people (46%) had been involved in two events (Figure 8). One of the interviewees, a 21 year old woman, had participated in more than five swapping events. People had taken part of the swapping events in Lund, Mora, Borås and Cracow amongst others.

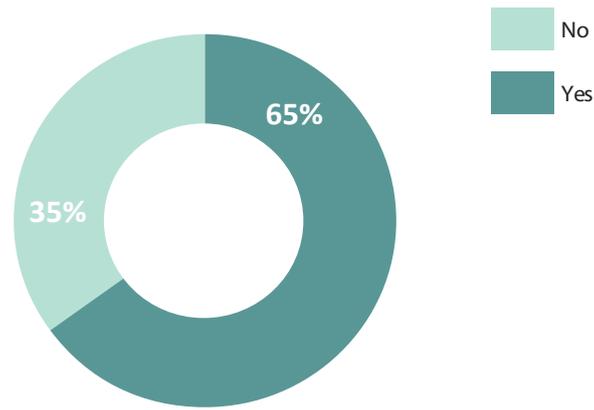


Figure 7: Previous participation in clothing exchange events
Own illustrations

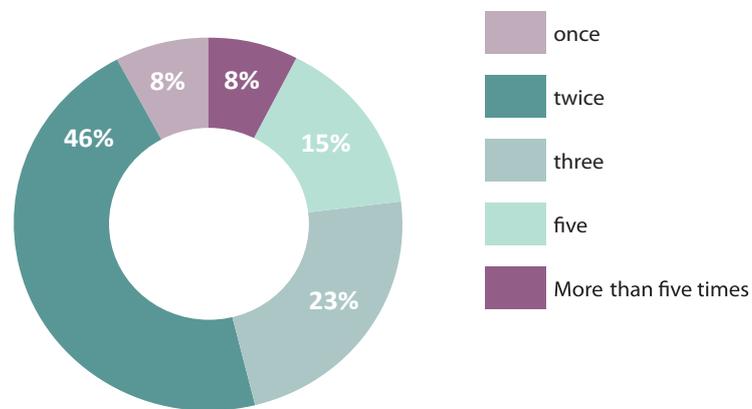


Figure 8: Number of swapping events attended.
Own illustration

All of the interviewees were interested about clothing exchanges and would like to do it more in the future. Most of the respondents (70%) favoured swapping as a better option than used clothes selling and buying (Figure 9). One of the respondents stated: “One in, one out of my closet. You don’t get too many clothes and you always have a “fresh” closet, the clothes will always feel new.” In general the exchange of clothes without using monetary transaction was seen a positive thing. Four of the interviewees (20%, Figure 9) considered both, used clothes’ selling & buying and swapping to be good options, because both of them were helping the environment.

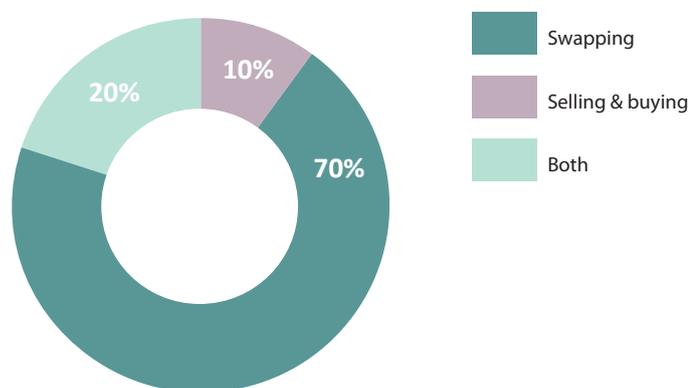


Figure 9: Preferences regarding acquiring and ridding of second hand dress
Own illustration

Authors also asked interviewees to determine what the problems of swapping clothes. Figure 10 shows that most of the respondents (55%) didn't see any problems or barriers of exchanging clothes. A 10% replied that the main problem of swapping is that in events you might not find products that are your style or right size. One of the participants saw advertising to be one possible way to improve this problem "Advertise the event more, so there's a bigger change you to find something you like" (by attracting more participants and thus a wider selection of garments). Two interviewees regarded clothes' values matching to be one problem of clothes swapping. Usually in the swapping events products are seen as equal regardless the brands or price range they has originally.

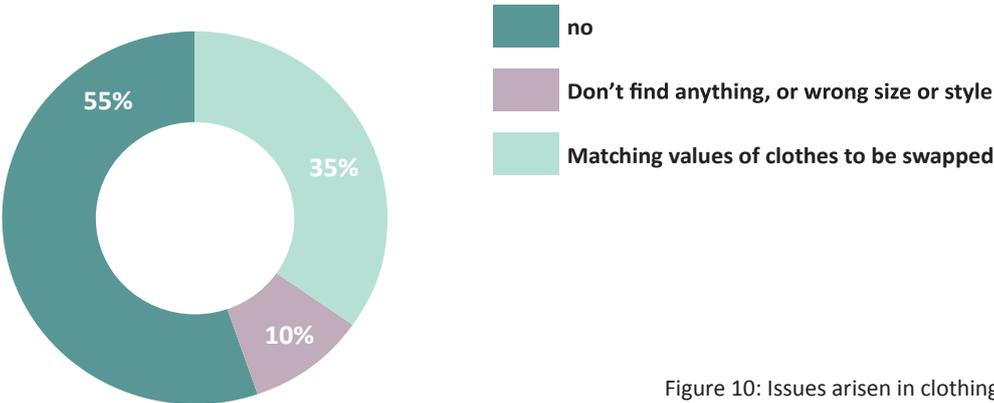


Figure 10: Issues arisen in clothing exchanges
Own illustration

All interviewees were interested about an application or/and webpage, which using they could exchange clothes more in their zone. Online swapping was seen as a good option, because events are organized in Borås so rarely (Figure 11). Two of the participants liked the idea, but still thought swapping events to be better, because in the events it's possible to try clothes on. Another two respondents emphasized the option to swap also children's clothes. One 27 year old female responder also told that with her friend and neighbors they have organized several swapping events in Borås, and the amount of participants at its best is had been around 50 people.

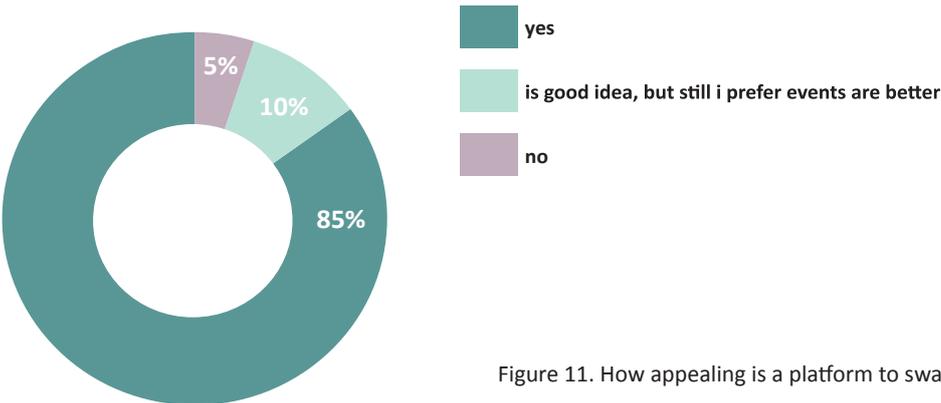


Figure 11. How appealing is a platform to swap clothing online
Own illustration

The people interviewed in general appeared to have a positive feeling regarding the event. They were excited to bring in their old clothing and being able to take home someone else's, and all through the experience was perceived to be good not only for economical reasons but also keeping in mind the environment.

After putting together the observations and results of the interviews, the authors confirmed that even in a small location like Borås, clothing exchanges were popular and a practice most participants ex-

pressed they think that should be encouraged as it is fun and environmentally friendly. Since these events were the first of the kind to be attended by the authors, it was made apparent the necessity of broadening the knowledge about the current availability of clothing exchanges by conducting a complimentary desk research on the topic, aside from the previously planned desk research regarding Up-cycling practices. This was necessary to confirm whether there were active online communities where these exchanges could be made, to assess the reach of this practice. Of the initial proposal outlined by the authors of providing a platform to enable local swapping, in attending the events was made apparent that it would not be necessary or sufficiently representative as there were already some local facebook groups that enabled the practice, even though they tended to be private and therefore not accessible to all. However, the authors then considered to integrate in one platform different activities users could do in order to consume, use and dispose more sustainably. This platform is used as a summarizing tool where all the different dimensions of use and disposal phases where the individual can take action to become a more responsible consumer are integrated together and reviewed through the next step in conducting a second round of interviews.

4.4 Secondary research findings

The secondary research was implemented using internet, and the relevant sources of information were swapping, upcycling and recycling companies/ organizations web pages and applications, DIY and up-cycling blogs and social media as Facebook and YouTube. The purpose of the secondary research was to survey how information and communication technology has been combined with environmental actions and how the public is making use of it to implement sustainable practices in their actions regarding garments. It was also made to further research the current sociocultural forces striving toward more sustainable habits and practices regarding clothing use and disposal. The following paragraphs present the main findings of every examined area: companies and organization's web pages and applications, blogs, Facebook, and YouTube.

The search was conducted by putting in the following search words in the different browsers in English: DIY clothes, DIY fashion, refashion, remake clothes, customize clothes, personalize clothing, easy upcycling, upcycling clothes, swapping, clothing exchange, swishing, upcycling companies, upcycling design, laundry app, recycling app, recycling textiles guide. All the sites were last visited on the 30th of May, 2014, and the sites that are here depicted were chosen because of their relevance in terms of popularity, diversity or innovative elements. The internet is a vast source of information regarding most topics and a selection that was relevant had to be made in order to accommodate the study into the purpose of this research.

4.4.1 Companies and Organizations

The Swap Team

<http://theswapteam.org/>

<https://www.facebook.com/#!/TheSWAPTeam>

The Swap team is a non-profit organization, founded in Montreal Canada in 2009. A volunteer crew behind the Swap team organizes swapping events around Canada. Their popular and branded clothing exchange event "Take Off Your Clothes" was arranged first time in 2007 in Quebec. During the last years they have swapped more than 52,000 pieces of clothing and donated over 51,000 pieces to charity. The Swap team has a webpage and it also uses social media Facebook, Twitter, Pinterest and Google+ to share information about their events and swapping. People can register for free to the webpage and get that way more information about upcoming swapping events or start follow their in social media, for instance in Facebook they have 10 051 (20.5.2014) followers. Taking part of the event costs 8 CAD, after that people can bring their clean and good quality clothes for swapping. Huge "Take Off Your Clothes" events includes also a separate section for expensive clothes "Salon Couture", and access to the area costs 30 CAD.

Swapping.be

<http://swapping.be/index.html>

<https://www.facebook.com/#!/Swapping.be?fref=ts>

Swapping.be organizes swapping events in Belgium. The organization was founded in Antwerp in 2011. Their swapping events are not just only about items exchanging, there are also manicure, hair styling and makeup services which women can enjoy while swapping. The events are not free, with an entrance fee of 10-15€. Participants can bring maximum 10 products to the events. After handing products they get tickets/swapping cards, which later works as a means of payment. Swapping.be also arranges spring, summer and winter swapping weeks, when there are swapping events during the week in different cities. The organization is really active; they arrange several events a month around Belgium. People can get information of the events through their web and Facebook pages. Registering for a member is not possible in their web page, Swapping.be's following is easiest in Facebook, where they have at the moment 2630 followers (19.5.2014).

Clothing Swap

<http://www.clothingswap.com/suzanne-agasi/suzanne-agasi.htm>

Clothing Swap inc. is a company which idea is to organize clothes exchange events around United States. Its founder and director is Suzanne Agasi. Clothing Swap events are usually intended to +21 year old women, most of the events have an entrance fee (20 USD) and pre-registration is needed. In Clothing Swap events participants can bring their all clean and good quality clothes for swapping. After swapping the rest of clothes the company donates to the local charity or non-profit organizations. In the events, the company also offers spa and beauty services. Information about the events can be found in company's webpage and Facebook where they have almost 3900 followers (15.5.2014).

Swishing

<http://swishing.com/>

<https://www.facebook.com/#!/SwishingOfficial/info>

<https://itunes.apple.com/us/app/swishing/id664565195?mt=8>

In 2007 Lucy Shea and Futerra, a sustainability communications agency in London created a web site; Swishing.com. It's a web page that collects information of the swapping events in one place, at the moment it's mainly used in United Kingdom. Swishing emphasizes that everybody can create own swapping events, contacting them people can get a "swishing pack" which includes all information, material and advices how to organize own event for instance pro-forma posters, press releases and leaflets for advertising, labels for organizing clothes. People can register to the service for free and after that advertise their swapping events through the Swishing.com. Everybody can search swapping/swishing events from a list or calendar without necessary to sign in. Swishing joined to Facebook at the end of 2009, at the moment they have 4341 followers (20.5.2014). Swishing also has an application for iOS devices.

The clothing Exchange

<http://clothingexchange.com.au/>

The Clothing Exchange was founded in Melbourne, 2004 by Kate Luckins. It is an organization that arranges swapping events around Australia and since 2014, and has also maintained an online swapping page. The online service is open for everybody around the world. The system works in the same way as usual swapping pages, people have to create a profile, upload information pictures about the clothes and after that they can start swapping. The service is not free, items listing to "My Wardrobe" cost 1 AUD per item and buying (using buttons) or swapping with another user costs 5 AUD. Listing fee acts as a quality control, it gets users to think more about product's quality, if a product is not good enough nobody will want to swap it. Products are listed in the page for 30 days; users can re-list their products

again paying 1 AUD. When a user registers to the page they have to give their credit card numbers that the service can automatically charge after actions. The organization uses earnings to maintain the website and create better events. The Clothing Exchange uses “buttons” as a currency in their events and online. When users upload their products to service, they have to define its value using buttons, from 1-5. When users want to swap their clothes, products’ button amounts should be around same. Clothes buying using buttons is possible, if a user doesn’t have a product that the other party wants. Users can earn buttons only if another user has purchased their product.

The page recommends products measuring and careful photographing so that other users can know more about the product. It also has its own size guides for women, men and children, which users can compare to their products measurements. When the purchasing or swapping decision is made it is not possible to make a cancellation.

The lately published webpage is stylish and carefully made, but not so popular yet. Products can be easily searched by different categories; the type of the cloth, gender, color and sizes. The Clothing Exchange can also be found in social media, organization uses Twitter, Instagram and Facebook. At the moment it has 1778 followers in Facebook (19.5.2014).

Swapstyle.com

<http://www.swapstyle.com/forum/viewtopic.php?id=12530>

Swapstyle.com is an online page where people around the world can free swap and sell books, electronic, cosmetics, clothes and accessories. Clothes and accessories swapping are the most popular categories. The webpage was founded by Emily Chester in 2003 in United States. For use the service people has to create an account, which can be made using Facebook profile’s information. Most of the users are from the United States. When a user has created a profile, the next step is to add products for swapping. That means adding pictures of the product and making a description, which includes at least information of size, material, colour, brand and value in USD.

Products can be browsed by different categories; price, user, country, selling and swapping. When a user finds something interesting he/she sends a private message (an offer) to the products’ owner, who then can view the sender’s products. If she/he also finds something interesting users can decide to swap their items. Swapping is based on people’s honesty, when users have decided to swap their products it’s their responsibility to send products to each other. Users can view others profiles and give feedback, they can see when a user has registered into the service, how many products has he or she swapped, sold, purchased and given away. In every user’s profile is also a star rating system, and others who have dealt with the user can review her/him using stars. Rating gives easily information about the user, depending on how many stars a user has it can be expected that he/she will be a responsible clothing swapper.

The page also has its own forum where members can share thoughts, ask help and discuss about fashion, beauty and life styles. SwapStyle has almost 900 followers (15.5.2014) in Facebook, it can be found also in Twitter and Pinterest. Web page has lately updated and current version is a beta version.

Project Laundry List

<http://laundrylist.org>

Project Laundry List was founded in 1995 in Montana by Alexander Lee. It is nonprofit organization, which talks behalf of better washing and drying routines to reduce environmental impacts. The special element of their web page is Green Clothing Care Calculator, which using people can calculate how much energy they use for washing and drying actions per year. The calculation inform the energy consumption in money, so it’s easy to perceive how much money the user could save making their routines more environmental. Project Laundry List has 4632 followers in Facebook (26.5.2014)

4.4.2 Mobile Applications

There are quite many recycling apps that have been created to make recycling more easier to people, however they are not very popular yet. The main idea in most of them is to share recycling centers and collection point's locations. Using people's location the app can give them the nearest places to recycle almost everything. Many cities and countries around the world have their own recycling apps.

iRecycle

<https://itunes.apple.com/us/app/irecycle/id312708176?mt=8>

Recycling app that shows where the nearest recycling centers in United States are. The service is broad it includes "more than 1,600 000 ways to recycle over 350 materials". Users can find local recycling centers easy using their current location, address, city or Zip code. The app gives details of the recycling points, including directions, website, phone number and opening hours. Users can share information of recycling centers via Facebook, Twitter, SMS and email. Earth911 released app in 2009, it has been listed to iTunes "App of the Week" more than 5 times. iRecycle is free and can be used in android and iOS devices.

Find Recycling Lite

<https://itunes.apple.com/us/app/find-recycling-lite/id424492326?mt=8>

An application that shows where people can find their nearest recycling points. It uses GPS in iPhones to find users current location. Users can also search collection points using name of the place or a Zip Code. Find Recycling Lite wants to cover as many cities and countries as possible for which they have asked users help. People can easily send suggestions of recycling points to the app, which it can update to their database and OpenStreetMap. At the moment app has listed recycling points in 15 countries mainly in Europe, the most widely it covers Germany and Austria. Elbatrop Ltd released free Find Recycling Lite in 2011. It can be used in English and German and only in iOS devices.

Kierrätys.info (in English Recycling.info)

<https://itunes.apple.com/us/app/kierratys/id475476114?mt=8>

Kierrätys.info is a free recycling application for iPhones and iPads in Finland. Users can find where is the nearest recycling place for different products, for instance paper, glass, batteries, electronic devices, metal and textiles. The service covers whole country and can also be used in English. If user allows the app using their location services it will automatically update the nearest recycling centers and collection points when user opens it. Recycling centers can also be searched adding the current street and city to the apps search engine. Users can share information of recycling centers via email. The app was released in 2011 by MIPsoft and it gets the data of recycling centers from The Finnish Solid Waste Association (FSWA). Kierrätys.info can also be used in internet (<http://www.kierratys.info/index.php>).

Kloset Karma

<https://itunes.apple.com/us/app/kloset-karma/id670271881?mt=8>

Kloset Karma is new clothes swapping application; it was released by DevCon One Inc. in March 2014 in Miami, United States. After registering using email, Facebook, Twitter or Instagram profiles, people can add pictures of their garments and accessories to the service. Application's map shows user's current location and other users around it. Application uses own currency "Karma points", which using people can purchase items from each other. Users can get Karma points inviting their friends to the service, adding clothes to their Klosets and exchanging clothes with others. Kloset Karma is free application and can be downloaded to iOS devices. The app has been available only few months which can explain small amount of users, in Facebook it have 177 followers (25.5.2014).

4.4.3 Youtube, DIY and Upcycling tutorials

Threadbang

<https://www.youtube.com/channel/UCBMxQPhfM6nkhQ8vPfqhkCg>

Threadbang is a DIY channel founded seven years ago in California, and their motto is “DIY or DIE”. Amongst other craft projects they offer instruction, step-to-step guides on how to modify, personalize or create garments, shoes and accessories in easy, comprehensible ways. They also take requests from the users on what they want to learn to later offer videos about it. The channel is currently being updated by two people, one who is dedicated to general crafts and the other who covers the textiles and accessories department. They have more than 300.000 subscribers to the YouTube channel, but their channel views are over 57 million. They also hold accounts in Instagram, Twitter, Tumblr, Facebook and Pinterest, but their most active point is the Youtube channel, the Twitter account in second place with about 115.000 followers . Examples of their work can be instructions on how to personalize shoes with a print, cut a t-shirt in a simple way or learn to do simple crochet accessories.

Ann Le (Anneorshine)

<https://www.youtube.com/channel/UCevNJDNNIKmG13YmTqLnZ-A>

Ann Le runs started her channel four years ago in California, by posting DIY videos of how to refashion your clothes and create accessories in simple ways. Today it is a styling, DIY and general fashion and body care advice channel, with more than 950.000 subscribers and over 65 million views. She also has Facebook, Twitter and Instagram accounts, but the Youtube channel is by far the most followed, the Instagram account being on second place with roughly 110.000 followers. Examples of her video tutorials are how to style different fashion garments as well as how to upcycle clothing in simple ways, like adding decorative stitches.

SecretLifeOfaBioNerd

<https://www.youtube.com/channel/UCKvvTLZppbz7As-RyG-ha-Q>

This channel was founded four years ago in Houston (Texas), and it has almost 600.000 subscribers. The author describes herself as a lifestyle blogger that covers a bit of everything, hair, makeup and DIY fashion. It has more than 52 million views in total, and also holds accounts in Facebook, Instagram and Pinterest, the second most followed account is on Facebook, with more than 50.000 likes. Examples of her tutorials are how to decorate t-shirts, make leather belts or accessories.

Bethany Mota

<https://www.youtube.com/channel/UCc6W7efUSkd9YYoxOnctIFg>

This channel was created five years ago in California, and is about makeup, fashion styling, and DIY projects of all kinds. The channel has more than 6 million subscribers and the overall views are over 460 million. She also holds accounts on all other popular social media, but still her youtube Channel is the most followed. This channel is exceptionally successful because it is run by an internet star, Bethany, who is a teenage idol now. Her videos are mainly about her everyday life in makeup, hair and styling but also about holiday gifts or personal advice. Her first DIY video was published three years ago, currently with almost 1 million and 500 thousand views, and it was made out of requests from her fans, which is why this particular channel must be included as to show how DIY is embedded in nowadays popular culture.

4.4.4 Blogs

A pair & spare
apairandasparediy.com

Geneva Vanderzeil created A pair & spare lifestyle blog in 2009. Now tens of thousands around the world daily read her writings and watch videos and pictures of her diy instructions, fashion and interior inspirations and travelling tips. A pair & spare has 59 468 followers in Bloglovin (23.5.2014) and 88 444 followers in Facebook (27.5.2014).

P.S.- I made this...
psimadethis.com

P.S.- I made this... is blog which offers extensively diy instructions of fashion, accessories, jewelry, home, beauty and food areas. Founder and author Erica Domesek released blog in 2009 in New York. Domesek has also published two diy books P.S. – I Made This..." in 2010 and P.S.- You're Invited... in 2013. The blog has 67559 followers in bloglovin and in Facebook 159 614 (23.5.2014).

I Spy DIY
ispydiy.com/blog

Jenni Radosevich from Wisconsin created a blog "I Spy DIY" in 2010. The blog is full diy tutorials for instance fashion, interior, hair, jewelry and make up. In blog is also own section for men "Guy DIY". Radosevich published a book of her diy ideas "I Spy DIY Style" in 2012. The blog has 90950 followers in bloglovin and in Facebook 31 798 (23.5.2014).

There are far more videos, companies and blogs that don't belong to DIY dedicated channels, or that are not DIY or upcycling specifically themed, that range from three million and a half views to just a couple of hundreds in their related publications, but given the existence of so many different sources, the authors chose to only reproduce the most viewed or relevant for the research as an extensive study conducted in the internet would be too long for the purpose of this thesis. However this would represent one of the interesting points for future research and classification.

Through the secondary research the presence of large communities that learn and teach upcycling procedures has been confirmed, and it is clear that DIY practices are becoming part of nowadays popular culture. In large bookstores like fnac in southern Europe or Waterstone's in the UK it is common to find entire sections dedicated to crafts and DIY publications. This not only hints at the huge demand this sections have brought, but also coincide with the large internet communities that continue to grow in this areas. The amount of blogs, video tutorials, books and companies has confirmed the fact that the inactivity regarding repair, reuse, customization and in general for upcycling is coming to an end, and the public is striving to learn. Since not all countries provide basic education regarding his topics, for example even the authors have had different learning experiences and processes, first internet communities were born and nowadays these have transferred to the real world in the form of knitting, crocheting and sewing meetings and cafes, where people meet and create, repair and learn together. This rise of crafts in the popular culture practices are slowly changing the way in which garments are regarded, used and disposed of, as consumers are gaining control over their objects and garments by being able to repair them and increase their life spans.

The authors themselves were overwhelmed with the amount of information found, and this fact lead to the realization that in this area it was probably hard for a newcomer to the upcycling practices to find comprehensible tutorials or information regarding the easier ways in which clothing can be repaired or customized, and would require a time investment that not all consumers would be willing to make.

4.5 Presenting the model

In the second acting part of the research cycle, the authors presented the idea and visual appearance of the AppCycler, a mobile application. The authors interviewed 10 people in semi-structured interviews of which 6 were female and 4 were male. The age range of interviewees was from 23 to 34 years, purposely selected in the vicinity of the Swedish School of Textiles. In addition to the application presenting, in the interviews it was also included a discussion of the participants' views of clothing exchanges, DIY, recycling and washing practices.

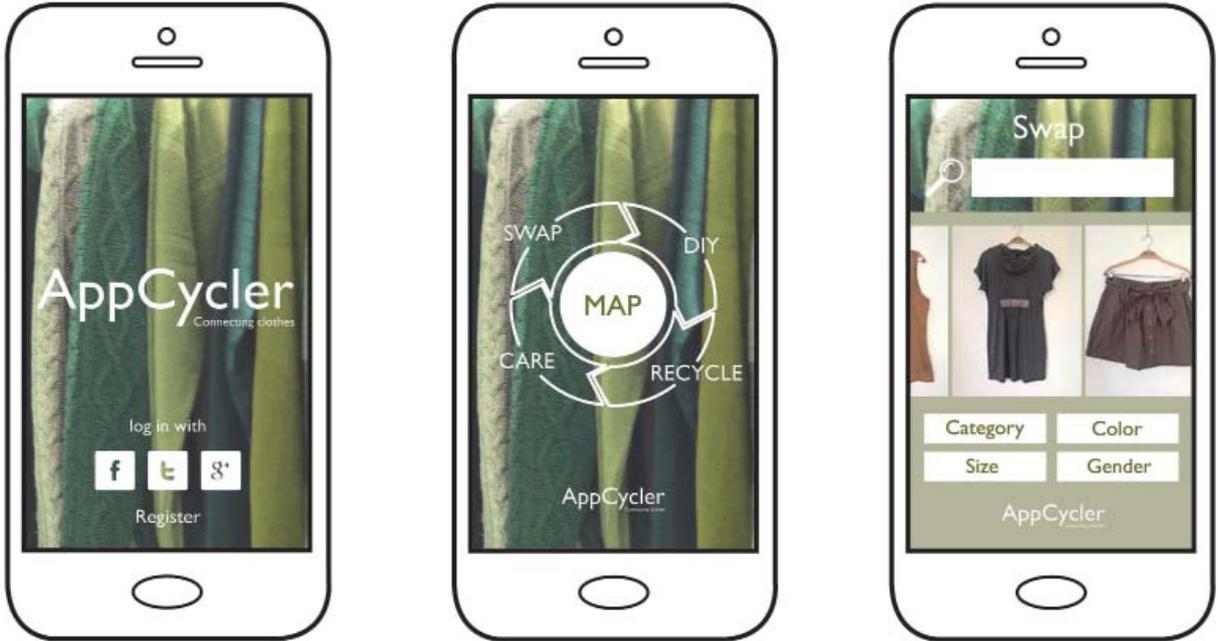


Figure 12. Layout of the AppCycler 1
Own illustration

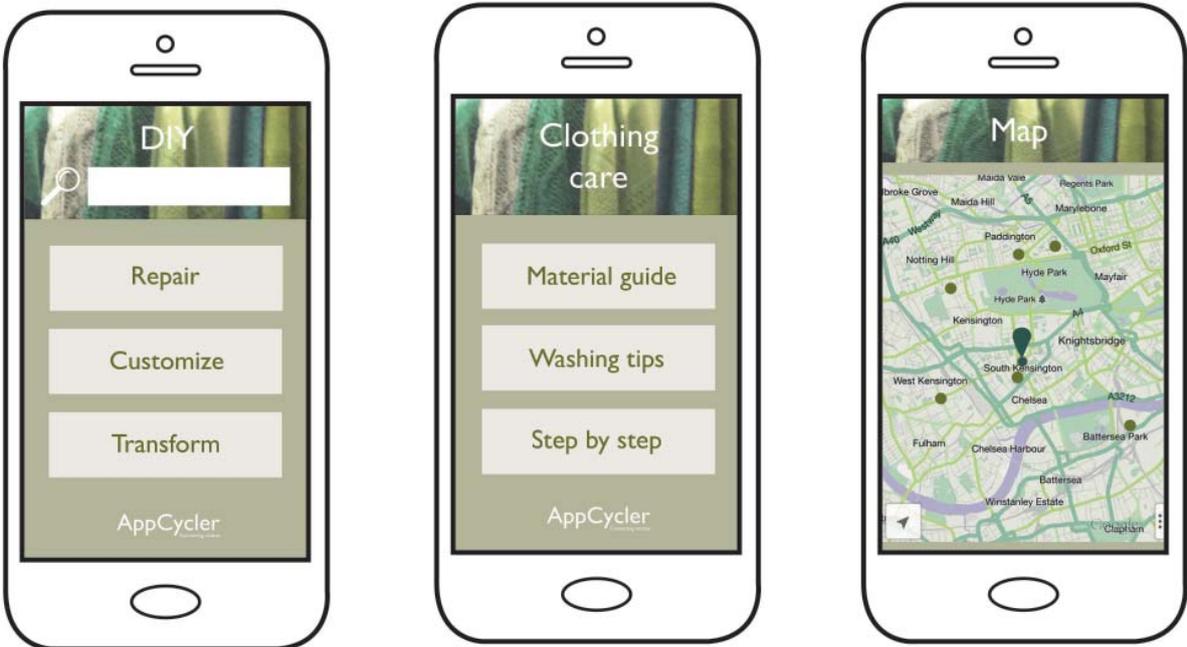


Figure 13. Layout of the AppCycler 2
Own illustration

In general swapping and diy were familiar concepts to the respondents, swapping as a term aroused confusion in some cases, but after mentioning also swishing and clothes exchanging the topic seemed clearer. Only a few of the respondents had taken part of the swapping events or had swapped clothes with unknown people, while exchanging clothes with friends and family was considerable common. Unwanted clothes disposal conducted by giving the garments to friends or family members was also seen as a good disposal method. Some of the interviewees would rather ask first their friends interest towards their clothes before donating them to charity. Clothing donation to charity was common among female respondents, while none of the male subjects had ever donated.

Disposal routines were a bit different between male and female respondents. All male participants mentioned purchasing long lasting clothes and using them as long as possible, until they were not wearable anymore, which can be seen as a one reason why clothes swapping and donating were not that common actions for them. Usually after use men took old clothes to recycling points or just threw them away. For almost all interviewees clothes recycling as a possible practice was familiar, but still most of them didn't actually recycle their clothes. The main answer to the question of why was that most of the respondents answered they didn't know where the recycling centers and collection points were, which is consistent with the studies previously reviewed in the theoretical framework.

All interviewees said that they know how to do their laundry properly when inquired about it, but more specific questions of washing temperatures and laundry separation proved a lot of differences between respondent's washing routines. Most of the people said that the highest washing temperature they use for clothing is 30-40°C. But also higher temperatures were used, one male respondent washes white garments in 75°C and one female washes her underwear in 60°C. Some respondents said that the reason for too high or not low enough washing temperatures was about the washing machines, where water temperature could not be selected separately. Washing by hand was common for all respondents as well as separating laundry by color, as well as a few also separated by materials and purpose. There were a few interviewees who had used internet to find help for instructions on clothes washing. Clothes repairing in a basic level as buttons sewing and small holes repairing were common. Some of the respondents had more experience in sewing, so they had made more complex repairing actions and also some DIY projects. In general clothes repairing was seen as a good practice, and many interviewees said that during the last years they had started to repair clothes more than before and instead of buying instantly new clothes.

Before explaining anything about an application the authors showed interviewees pictures of AppCycler's layout (see figures 12 and 13), and asked them to describe what they saw and how they understood the pictures. Everybody realized that AppCycler was a smartphone application, the name, green colour and the cycle of arrows in menu page with application's actions lead many respondents to connect it to recycling. All respondents also recognized the idea of the application, it was: "an information site", "It's an app for swapping, diy and how you can take care of clothes" and "an app for everything that is related to garments after purchasing". the app was seen as quite clear and easy to understand, only the term "step by step" and difference between transforming and customization was seen a bit complicate to understand. After receiving the input based on the layout, the authors explained how it was a platform to enable different sustainable practices like swapping, learning how to upcycle or repair garments with DIY tutorials, learning how to wash properly garments and in a sustainable way, and also locating recycling and donation points close to the user's location.

The authors then asked interviewees' opinions about the possibility of using the application, for which most of the respondents answered affirmatively. The map was seen as the most useful element of the application. Most of the users believed that using the map would make them recycle more of their clothes, because of the collection and recycling points locating. Also sustainability related clothing brands and second hand shops in a map was seen interesting. Most of the respondents would consider swapping if the app was available. Swapping was also the area that raised the most questions. Interviewees saw different barriers in swapping, which would influence their decision to use it. Clothes'

value determining process, arranging the meetings for clothes exchange, amount of users and the quality of clothes was seen as the biggest barriers. Some interviewees saw the DIY and clothing care parts more important than the others, but in general the areas were seen as good additions in the application. If DIY tutorial videos would be interesting and short enough most of the respondents would consider watching them. This suggests that taking care of the garments while in the use phase was seen as the most important side of the app, which extrapolates to the fact that they are more concerned with keeping their garments for as long as possible rather than in disposing of them in a sustainable or not way.

In general interviewees' feedback of AppCycler was positive and they saw that there could be a need for an application which increases awareness, educates people to be more responsible consumers and makes them think more about their clothes' life cycles. Interviewees gave also good suggestions for improvement as collaboration with recycling organizations to get valuable information of recycling and also to offer the possibility to swap materials for DIY projects.

5. Analysis

In this section all the aspects of the project the authors have developed will be explained in further detail, as well as the findings related to the research questions specified and integrated into the aforementioned project.

5.1 Mobile application, AppCycler

As an outcome of the research the authors have created a project consisting of a mobile application for smartphones, called AppCycler. The rationale behind the application is to help educate people sharing diverse information of possibilities on how they can make garments life cycles longer and thereby be more responsible consumers. Following paragraphs and pictures present the idea defining its contents and visual appearance. This project has been developed from the identified initiatives and diverse problems, especially regarding infrastructure, found during the theory review as well as during the action and secondary research. It is a tool that would respond to the specific sociocultural initiatives outlined from the latter, as well as complement the ones already found and researched by other studies.

AppCycler is a mobile application with the aim to influence consumers, make them think more about their consumption habits and their environmental impacts. The app's idea is to give answers to basic questions of clothing care, repairing, remaking and recycling of clothes, for one of the main issues found both in the theoretical framework and in the results of the second round of interviews is the lack of information and infrastructure.

The app would be free for its users because it needs to be above all an enabler as well as an information resource, and in order to be appealing it cannot be for sale, or focused only on obtaining profit because it would act against the objectives behind it. For using the app people would be able to register using their email addresses or login using their social media profiles in Facebook, Twitter and Google+. The reason for offering the possibility to login using user's social media accounts is that it enables the app's quick commissioning. Using existing profiles requires that the user accepts the service provider to share him/her location, friends and pictures with AppCycler in order to be functional. After logging in or registering the user would get access to use AppCycler's five key features; swap, DIY, care, recycle and map.

5.1.1 Swap

Swapping is a potential viable option to continue clothes lifecycles on a large scale for the time investment it requires is lower than in upcycling practices and it still rewards the actor to give and receive some garment in return, unlike with clothing donations. The swap section of AppCycler enables users to exchange their clothes and accessories with others. It's using is a good alternative to get rid of unwanted garments, get new ones without spending money and possibly meet new congenial people, thus engaging in the whole community of 'swappers'. After registering/logging in to the service the user can start to upload pictures of their unwanted clothes to their profile's swapping wardrobe. Together with the pictures users have to add small description of the clothes, and determine its value using Green coins. Green coins are AppCycler's own currency, which cannot be bought using money, for it defies the purpose and advantages of clothing exchanges. Users receive Green coins when someone else purchases their garments, and can then buy products using Green coins or swap them with another user if they both are interested of each other's products. Users can search products on the swapping section from the main page using different filters and when they find something interesting send a swapping offer to the product's owner. AppCycler recommends users to arrange meetings for exchanging their clothes instead of sending packages by mail, which is more costly and worse for the environment, since the aim is to establish exchange relationships within close by locations. That's why the app would collaborate with local coffee shops offered as meeting points which users can easily find

in the map. Users can also create their own swapping events and invite friends through the app, and for a small service fee users can also mark their events into the map.

5.1.2 DIY

This section's aim is to continue garments' lifecycles by encouraging people to repair, customize and transform their clothes more. Information sharing is based on simple tutorial videos and pictures. In the repair section tutorials are about commonly needed repairs in clothing, for instance how to sew a button, change a zipper for a jacket and how to fix holes in knitted shirts. Tutorials in the customize section give different kind of tips on how to modify old clothes easily by making small changes. Transform section's videos are for making bigger changes in the clothes. Those videos and pictures show how old clothes can be transformed into something totally new. Tutorial videos will be created in collaborations with diy-bloggers and upcycling companies.

5.1.3 Care

This section of the app covers all basic information of materials and clothes maintenance activities. In the material guide users can find basic descriptions and care instructions to all commonly used materials. Furthermore material descriptions include also information of material production and environmental impacts. How much water the production of the material requires and how it should be recycled properly. Washing tips label gives information of washing temperatures, detergents, laundry separation and drying possibilities as well as how to save energy and money changing washing routines. Step by step includes short videos and instructions of maintenance practices for users who have less experience in laundering, drying, ironing and storage.

5.1.4 Recycle

The Recycle section offers diverse information about clothing and textiles recycling. Collaborations with national recycling organizations are important to receive general information of recycling methods and recycling point locations. In this section user can find answers how to dispose of unwanted and damaged clothes as well as how to donate clothes which are still in good condition. It would also contain information on different aspects regarding recycling, for instance what happens to the clothes in the recycling process and what kind of garments can be transformed back to textile fibers and materials.

5.1.5 Map

The Map is the central element, which collects all other parts of the application together. In the map a user can find all important places which are related to sustainability in clothing; the nearest recycling centers, collection points, secondhand and vintage shops, charity shops, laundry services, eco-friendly stores and leasing services. It also shows swapping events and meeting points where people can meet and swap their clothes easily. Using different filters a user can delimit the contents of the map to display all information or to show only recycling or swapping related locations, for example.

The map is important part of AppCycler's financial structure. Resources for the application's administration and marketing will be covered by selling location "spots" to companies. To get a mark on the map requires companies to sponsor the project. This is consistent with the way that search engines are funded. The user does not pay for the service, instead an interested party does (Baden-Fuller & Haeffliger, 2013). This would help companies display an interest in fashion sustainability and thus increase their image from the public's perspective.

5.2 Summary

The development of this project has served as a tool in outlining and integrating the different outcomes of the present research. These are, aligned with the research questions, as follows: In answering the first question, “What are the main current sustainability problems regarding fashion from a user and consumer’s perspective? What are the main barriers impeding more sustainable practices?” both from the theoretical framework and the action research the authors identified some key points. First, the main problems regarding sustainability from a user perspective are:

- The environmental impact caused by laundering, both from energy waste and use of cleaning products, which is due to users not having enough information on washing processes and characteristics, as well as the current perception of cleanliness because it drives users to clean more often than necessary and without taking full advantage of the washing machine, sections 2.3.2 and 2.3.3.
- The inadequacy with which garments are being disposed of, ending up in landfills. Especially considering the fact that most of these garments could still be worn if they had been donated to the appropriate organizations, or recycled if disposed of responsibly, section 2.3.3.
- Recycling options, advantages and possibilities are not known or advertised enough for users to change their practices, as shown through the interviews in the second phase of the action research, section 4.5.
- Even though the authors have researched the emerging trends that are slowly changing this fact, in general users are not repairing or reusing as much as it would be possible. Generally because of lack of knowledge or infrastructure, and the time investment it represents to learn or research them, as some of the interview participants expressed, sections 4.3 and 4.5.

As a response of the research question : “What are the main sociocultural initiatives that strive towards a more sustainable fashion consumption model?”, the authors conducted both action research and secondary research to overview how the current initiatives implemented in several forms of popular culture media such as Youtube, some of which were previously outlined in the theoretical framework are:

- Forms of clothing exchange like Swapping, with several active sites with thousands of people exchanging garments every day, as has been shown through the examples in findings of the secondary research, section 4.4.1.
- Upcycling practices learned through DIY tutorials or blog step-by-step instructions, with Youtube channels that hold several hundred thousand followers, section 4.4.3.
- Donating and purchasing second hand clothing, 2.3.5.

In answering the final research question, “What kind of infrastructures (businesses, resources) are available that would help or are helping overcome the issues developed during the use phase?” the following actions and enterprises are specially relevant:

- Involving consumers in the design processes in order to create added value in the products and thus providing them with longer life cycles through care and repairs, section 2.2.1.
- The existing mobile applications giving instructions and the location for recycling textiles, section 4.4.2.
- The designers and companies that are commercializing upcycled and second hand clothing, from charity stores to high end designers, section 2.3.7.
- The present studies regarding use and disposal phases of a garment’s life cycle that, if spread, would help educate consumers about their choices, section 2.3.3.
- The tutorials available for free as well as the DIY publications that are becoming more popular in response to the crafts revival, for they originate from sociocultural forces but they are also a form of infrastructure in providing the information necessary to increase garment’s

lives, section 4.4.3.

-The existing companies enabling forms of clothing exchange all around the world with the internet as a platform, section 4.4.1.

Even though as shown, there are several enabling structures available, the main issues are related to awareness and reach of such practices. It has been outlined through this research how consumers lack knowledge regarding the impact their use and disposal habits have in the environment, and so long as this continues it is hard for the existing or upcoming initiatives to really influence the main public's behaviours. Enterprises that have taken sociocultural initiatives like swapping or upcycling are becoming more popular and widely represented in the social media sites, and it is possible that within a few years initiatives like 'The Wardrobe', for leasing clothing will become more popular too and thus help establish sustainable practices available for all consumers. In the meantime one of the main current challenges consists in broadening the reach of the information regarding sustainability issues derived from fashion so the public can make educated choices not only in their consumption habits but also and as important, in their use and disposal phases as well.

6. Conclusions

In the course of this research the main environmental issues arisen from the consumption, use and disposal practices that are common nowadays have been outlined, as well as the several countering initiatives that strive toward tackling these issues in order to improve and enhance the ability to follow and comply with the sustainability agenda defined in the Brundtland Report. The current popular practices that are examples of sociocultural forces driving the need for change in fashion consumption habits have been identified and researched through social media and swapping events in order to frame how the public's need and demand for knowledge is increasing and no longer want to be kept in the dark about the products that surround them, nor do they want to discard them without concern. The current crafts revival, exemplified by the increasing amount of DIY publications and tutorials demonstrate how consumers are growing tired of the meaningless consumption habits that have been standard for so long, and now are in the quest for meaning through learning about and gaining control over their everyday surrounding objects. There are still many barriers to be overcome in order for fashion garments to be sustainable, and most have to be conquered by the users themselves. By changing small actions in their everyday behaviours, such as laundering habits, consumers can actually help to stop the huge impact garments and their use have on the environment, but most just don't know the power they hold, or the repercussions they could avoid. This thesis contributes to shed light into consumer's practices, both pro and against the environment, and the different reasons and drivers behind them.

By conducting the action research and observing and interviewing several people, as well as by reviewing the existing theories and studies, the authors came up with an enabler platform, called the AppCycler, that would tackle most of the issues developed during use and disposal phases if consumers were to use the tool. The integration of the different possible solutions in one mobile app is just a means of condensing the results that this research obtained in a positive channel. It is a mobile app because of the large reach it can achieve, and its convenient nature, and it combines infrastructure for recycling, washing, upcycling, swapping and overall taking care of garments, which are the main areas related to the use and disposal practices and the difficulties they create for the environment. During the course of this research the authors have grown to regard the AppCycler project as a viable possibility and are committed to fully design, program and launch the initiative. The project will be undertaken after the finalization of this thesis and the first launching platform will be Android due to its current market share and the accessibility of the tools necessary for it.

In matters of future research, once the App is launched and advertised in order to have representative users, studies regarding the changing of practices, the percentage of clothes recycled, swapped or donated would prove interesting in order to confirm or dismiss the claim that most consumers have that they do not have more sustainable habits because of the lack of infrastructure available to achieve them. Also an extensive research of the crafts revival movement would help gain insight into the motives behind its popularity and the estimated reach in time it will have, for now it is not clear whether this identified initiatives are part of a trend that will eventually fall out of fashion, or are a serious first step in the long road to achieve a sustainable future.

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Appendix 1: Interview questions in Swapping events

1. Have you attended a swapping event before? How many times?
2. Would you like to exchange more?
3. What do you prefer, buying/selling or swapping clothes? Why?
4. What are the problems of swapping clothes? Do you have any suggestions to improve it?
5. Would you like to use an mobile application or a website where you can easily swap clothes in your zone?

Appendix 2: Interview questions in model presentation interviews

1. Do you know what swapping and diy mean?
 2. (Referring to figures....) What do you think this is?
 3. How do you dispose of the garments that you don't wish to use anymore? How do you dispose of the garments that are not suitable for wearing anymore?
 4. Have you tried swapping?
 5. Have you recycled clothes?
- Do you repair your clothes?
6. Do you know how to wash your clothes? What is the highest washing temperature you use?
 8. (after explaining the different functions of the application) Would you use the application?
 8. Would you consider using swapping and recycling parts of the application?
 10. Any other ideas or comments of the application that you would like to add?

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