Scaffolding second-hand fashion consumption among adolescent girls

Cool and sustainable app design for better user experience of redistribution of clothing

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Abstract

Climate change is a highly present challenge of the 21st century. Human factors are contributing to global warming with over-consumption as a part of the problem. The consummation of clothing is increasing, and we own a lot more items than we actual use. This calls for change in consumer behaviour, and we need to establish more sustainable consumption patterns.

New technology has given us a possibility to look for new ways of redistributing goods. Several second-hand redistribution platforms have emerged, world wide. In Norway, the launch of the first service, Finn.no, second-hand markets entered a new, digital platform, providing a wide online network for redistribution. The introduction of smart phones and apps provided, even more, potential for online redistribution of goods, giving us tools for buying and selling any time from any place one finds oneself. Today, this is a fast-growing market with new services constantly appearing. Even though there are a lot of providers and different ways to buy and sell second-hand online, this is still a marginal part of most people’s clothing consumption. We would like to change this.

This thesis presents a project, creating a new service supporting sustainable consumption. The service is aimed at young girls, at the age of 15-20, a user group of digital natives with interest in fashion and sharing clothes more often than older user groups.

The theoretical framework for our research is Intentional Design for Innovation, a theory about how to design for joy. The service is a result of a design process, using the methodology of User Centered-Service Design, focusing on both product and service. The final result is a prototype developed through iterations of user research, design, prototyping and evaluation.
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Nomenclature

EPLOC - Externally perceived locus of causality

GEN Z - The generation born after 1995

HCI - Human-Computer Interaction

SD - Service Design

SoMe - Social media

UCD - User-Centered Design

UI - User Interface

UX - User Experience

WYSIWYG - What you see is what you get
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Chapter 1

Introduction

This thesis presents the design of a new service supporting sustainable consumption.

1.1 Our motivation

We believe that the greatest challenge that the world phases today is the global "crisis" of climate change. We’re experiencing heat waves, the ice on the North Pole is melting, the ocean rises, the great barrier reef is dying, and we (humans) are most likely one of the main factors causing this situation.

One of the great challenges that are a big part of this issue is that we are over consuming, we have access to everything, we can afford a lot, and we are wasting important resources for sustaining our consumerists habits. One of the goods heavily consumed is textile. Trends, luxury brands, fast fashion brands, magazines and advertisements "demands" that that you need a new dress for every occasion, new jacket every autumn and winter because the old one is "out" and not cool anymore, and the lists goes on. Our new consumer habits cause a significant increase in textile production [43]. The majority of the fashion trends and fast fashion brands are targeted towards women, and they are the ones that buy the most. We want to motivate girls to make better decisions when it comes to clothing consumption, and this is our main motivation for choosing this research subject. We are not heading into this project thinking that we are going to solve the climate crisis, but we want to do a tiny part in the big picture.

Other motivational factors are that one of us has already worked with designing a redistribution service for girls named Snapsale and she already has some domain knowledge. Both of us have been using redistribution
services for quite a while, and we believe that even more people should take part in extending the life span of clothes, but for encouraging people to take part in the life prolonging of clothes, we need better services that facilitate for second-hand consumption. It should be as easy as going to H&M

1.2 Target group

Our chosen target group are young girls aged 15-20. They are members of the post-millennial generation, often referred to as Generation Z. These girls have grown up in a digital world, using computers, smart phones and tablets from a young age, making them the first generation of true mobile mavens [49]. This target group easily adopts new digital tools and services which make a good basis for our project.

We also found this target group interesting because of their clothing consumption habits, as women buy more clothes than men. A qualitative survey on clothing consumption was conducted by SIFO in 2013 [32], based on 1000 representative respondents from the Norwegian population, and included questions asking how many items from different categories were purchased the last 12 months. The report states that when asking the respondents about the number of clothes bought, people often underestimate the actual numbers, and can not be seen as a reliable source - nevertheless, these numbers can tell us about the difference between the consumer groups considering age and gender. The reports show that the female part of the population buys the largest amount of clothes in all categories, apart from socks and training shoes. The categories were trousers, underwear, nightwear, jackets/coats, tops, sportswear, tights and shoes for winter.

The same report shows that women, in addition to buying more clothes than men, share clothes more often than men. A survey from 2014 indicates that 64% of the male respondents never share clothes, shoes or sports equipment with family or circle of friends, in contrast to 46% of the female respondents. The study also shows a tendency of sharing of clothes being most common among the youngest age group represented in this survey (age 18-29), and they share clothes, shoes and sports equipment with several different groups of people, like friends, neighbours, colleagues, parents and siblings [32].

We also got the access to the age and gender distribution of the users at Snapsale, a report which reveal that the majority of the users are young girls.
The distribution of age and gender at Snapsale.com:

Age:
- 13 - 17 years: 16%
- 18 - 24 years: 35%
- 25 - 34 years: 30%
- 35 - 44 years: 8%

Gender:
- 80%: Women
- 13%: Men
- 7%: Unknown

We consider the user group of young girls as a good fit for our thesis. This young age group seem to be open for new technology and services as well as open and willing to share clothes with others. We also consider females as an important target group when it comes to supporting sustainable consumption, as women buy more items than men which mean they have more potential for improvement.

1.3 Research interest

This thesis aims to develop a service for young girls aged 15 - 20 years old, to support and motivate them in choosing a sustainable option of consumption. The research question of this thesis is:

Designing to support a more sustainable consumption - Can improvement of user experience in services for redistribution of clothing, support and motivate to a more sustainable consumption among adolescent girls?

We divided the research question into a set of sub-questions, exploring the RQ from different points of view:

- What can we learn from existing literature on barriers to sustainable consumption?

- To what extent are motivational theory relevant when designing to support sustainable consumption habits?

- To what extent can cool theory help us designing a service
1.4 Thesis structure

Chapter 2: Background  
*Literature review* Presents an overview of existing literature in connection with our research subject. The exploration of definitions, frameworks and other existing research material that we find useful in connection to our research question  
*Market analysis* An overview of existing services on the market in Norway, today.

Chapter 3: Theoretical framework  
Presents our theoretical framework  
*Intentional Design for innovation*

Chapter 4: Methodological framework  
Presents our methodological framework; User-Centered Design, and Service Design. Then it presents our choice of methods.

Chapter 5: The service  
This chapter contains our design process from beginning to the end, divided up in iterations. *Iteration 1* Data collection, thematic analysis, persona creation, ideation, conceptual ideas, internal evaluation  
*Iteration 2* Development of prototypes of three concepts, concept evaluation and focus group.  
*Iteration 3* Re-design, heuristic evaluation with experts  
*Iteration 4* Re-design and customer journey mapping

Chapter 6: Discussion  
This chapter presents a discussion of our findings with emphasis on our theoretical framework and the literature from our literature review. How the framework affected our design outcome

Chapter 7: Conclusion and future work  
The concluding chapter contains a summary of findings aligned with our research question
Chapter 2

Background

Sharing economy, collaborative consumption, peer-to-peer economy and collaborative economy are terms frequently described and discussed over the past couple of years, both domestic and worldwide. In Norway, especially the term ‘sharing economy’ has been a hot topic of discussion in the media. The use of the term exploded in 2015/2016 [68], as new services appeared and with an increasing number of users. The concept of sharing is not a new thing, it is a phenomenon as old as humankind, as humans have always been sharing information, goods and services. In the 21st century, new technology and digital services have enabled new ways of sharing. New digital platforms have made it possible to create social networks and communities for people that want to share, sell, lend and buy. With the Uber app, you can easily find a person that is willing to drive you for a lower price than a regular taxi. With communities like Shareyourmeal, you can buy cheap leftovers from your neighbour’s home cooked dinner. You don’t want to buy a $200 power drill just for 5 minutes of use? Then borrow one from a guy in the next building that hardly ever uses his. Using networks like friends and family to exchange services and goods isn’t a new phenomenon, but new digital platforms make it easier to create large networks and bigger communities between people, not just friends and family but throughout the world.

2.1 Literature review

We started our work by reviewing existing literature in our field of expertise. We looked for the historical roots of sustainable HCI, and the diverse lines of development since the introduction of sustainable interaction design, in particular, the evolution of sharing economy and collaborative consumption. We also looked for literature on the research
field of climate psychology as well as values-led design.

2.1.1 Sharing economy and collaborative consumption in HCI

Human Computer Interaction and Sustainability

Overview of the research on sustainability in the field of HCI. Our review is not systematic and exhaustive, rather, it points to articles that were important for shaping our trajectory throughout this thesis.

In the HCI community, the research area of sustainability emerged in 2007, with the seminal paper by Eli Blevis named “Sustainable Interaction Design: Invention & disposal, Renewal & Reuse” [5]

This article is a starting point for a perspective of sustainability in the HCI research field, presented in terms of design values, methods and reasoning. Blevis introduces the foundation of Sustainable Interaction Design (SID), and he points out that this should be a central focus of interaction design. He focuses primarily on environmental sustainability, and the link between technologies and the use of resources, from two slightly different points of view. The first on how interactive technologies can be used to promote more sustainable behaviours, also relevant for our work, and the second point is about how sustainability can be applied as a critical lens to the design of interactive systems, themselves. He proposes several design principles that can serve as goals for sustainable interaction design. The main two principles towards sustainable interaction were “Linking invention and disposal” and “promoting renewal and reuse.”

Linking invention & disposal - A design of a new object is incomplete without making sure of what happens to the object or systems that are being replaced. [5]

Promoting renewal & reuse - The design of objects or systems with embedded materials of information technologies should first and foremost consider possibilities for renewal and reuse of existing objects or systems from the perspective of sustainability. [5]

Hanks et al. wrote an article in 2008, named “Sustainable Millenials: Attitude towards sustainability and the material effects of interactive technologies” [21] This paper describes the design and interpretation of a survey of 435 undergraduate students, concerning the attitude towards sustainability of the material effects of IT’s. It builds upon the earlier work
in the latter section, by Blevis [5] To advance the empirical material within SID.

The interpretation of the survey leads to four profiles based on attitude and behaviours towards sustainability, and it’s divided up in:

- **Individual material success** - people who like new things and do not see sustainability in environmental terms as a primary concern. [21]

- **Collective material success** - People who care to preserve durable things, and pass them down from one generation to another, but do not see sustainability in environmental terms as a primary concern. [21]

- **Legacy material success** - People who like new things and care about sustainability in environmental terms. [21]

- **Global Collective fate** - People who care to preserve durable things and cares about sustainability in environmental terms. [21]

In the article "Understanding why we preserve some things and discard others", Odom et al. [46] brings up the issue of why we keep something passionately and discard other things easily, in the context of our homes. They investigate the relationship between people and objects, using Verbeeks theoretical framework [64] based on three design perspectives that affect durability. Why is it so that something is enduring while other things as easily discarded. The three perspectives are Function, Symbolism and Material Qualities. **Function**: Is the product useful, does it do what it intentionally was designed to do. **Symbolism**: Does the object have meaning or sign-value. What the object means, are the person drawn to the object because it expresses the lifestyle that person. **Material Quality**: “What an object is made of and it’s broader sensual appeal.”

And further dividing the characteristics of the relationship between the owner and the object in four clusters: strength of attachment, into four relationship clusters: engagement, histories, augmentation and perceived durability. [46]

In 2011, Pierce and Paulos wrote an article about the motivation behind reacquisition [50]. Emphasising on acquiring previously possessed goods. The empirical material is derived from in-depth interviews with 18 reacquirers. They are reframing the definition of the “consumption” of durable technologies as acquisition, possession, dispossession and reacquisition. And they present four reacquisition orientations describing the participants motivations and practises, the four orientations are:
• **Casual reacquisition** - For this type of reacquirers, reacquisition is primarily seen as a cheaper alternative. It enables them to possess goods, that otherwise would have been “financially prohibitive”. They want to minimise the distinction between first-hand and second-hand goods. “For a casual reacquirer, the regular store with new things is in almost every way preferably aside from the price difference”. [50]

• **Necessary reacquisition** - Necessary reacquirers approach reacquisition as a financial necessity. They deem to obtain essential goods. And have to choose reacquisition because of low income, living close to the poverty threshold. [50]

• **Critical reacquisition** - Critical reacquirers are consciously and reflectively bound up with considerations of social, political, economic, ethical and/or environmental concerns. [50]

• **Experiential reacquisition** - The experiential reacquirer, reacquisition is anchored in aesthetic qualities. Both in the process of reacquiring and the object reacquired. The experiential reacquirer enjoys the process of hunting down aesthetic second-hand items, even tho it takes hours. [50]

In 2016, Lampinen and Cheshire wrote an article about the motivations and financial assurances of Airbnb. They examine the structures of financial assurances and the clearly defined financial transaction reducing uncertainty for Airbnb hosts and guests [33]. They conducted a qualitative study, interviewing Airbnb hosts. The core findings were that financial assurance structures provide a reduction in uncertainty, encouraging initial decisions to try out hosting and that the financial benefits do not necessarily crowd out intrinsic motivations, but rather strengthen them. [33].

**Future services**

Similar to our intentions we find in "Zygo: Designing led reframing of secondhand marketplaces" [60] Srivastava introduces the proposal for a new second-hand marketplace "Zygo". She re-positions the second-hand marketplace as a scaffolding to support and connect the youth in the transient, varied and yet complementary phases of their lives and helps them in managing their respective aspirations and needs.
Cool theory

In the article "In pursuit of cool and its implications for the design process" [35], Machiniak considers the cool model for teens based on: being cool, acting cool and having cool. The latter is of direct interest for our project.

Culén and Gasparini’s article "Situated Techno-Cools: factors that contribute to making technology cool in a given context of use" explore the concept of situated coolness to frame factors of making techno-cool cool in a given context of use [10]. Their research provides insight into the contextual factors to be considered when designing for cool.

There is a lot written about how to design for joy or emotions in general. One of the contributors is Don Norman, who wrote the book "Emotional Design - Why we love (or hate) everyday things". In this book, Don Norman introduce the "Three levels of processing: Visceral, behavioural, and reflective", which is about how we experience certain things in terms of emotions, that emphasise a lot on the same emotions that we refer to. [44]

2.1.2 What is collaborative consumption?

There is no universally agreed upon definition of what collaborative consumption is. We’re now going to define the acts of collaborative consumption, what is included and what is not. We will also elaborate on how some people define it in the field of collaborative consumption.

But first, let’s start by defining sharing. What is sharing? Belk suggests that sharing involves "the act and process of distributing what is ours to others for their use and/or the act and process of receiving or taking something from others for our use" [3]

Benkler has another succinct definition of what sharing is; he sees sharing as "nonreciprocal pro-social behaviour" [4]

We have different types of sharing. We have the typical "sharing out" [3] that is seen as a one-time-act such as giving the directions to strangers, give your seat to a stranger on the bus, providing a homeless person with some spare change etc. Some of these are seen as cultural norms, it’s expected behaviour from the society. When sharing is seen as an inclusive act where the recipients becomes a part of the pseudo-family, it can be described as "sharing in." [3]

We have some other cases of sharing, that is borrowing and lending. The person lending out is expecting to get the item or some equivalent to the items value, in return. But we have other cases in the name of borrowing as well. When a student asks a fellow student if he/she can
borrow a sheet of paper, we don’t expect to get it back. But it can create a special bond between the two, that can lead to exchanging things back and forth in the future. [3]. If you ask a stranger on the street, if you can borrow their mobile phone for a second to make a call, the stranger expects you to return the mobile phone as soon as you are finished making the call. This latter case is seen as "sharing out". [3]

These latter sections are typically seen as sharing incidents in our regular life.

Now that we have elaborated on what sharing and lending is; let’s dig deeper into what the definition of collaborative consumption and what it really means.

Belk defines collaborative consumption as “People coordinating the acquisitions and distribution of a resource for a fee or other compensation” [3]

While Botsman and Rogers defines it as “traditional sharing, bartering, lending, trading, renting, gifting and swapping” [53]

Botsman and Rogers definition is broader and includes gifting; it also includes services with no compensation involved, such as Couchsurfing.com [40]

It’s debatable whether gifting and services with no compensation should be included in the definition of collaborative consumption. Belk’s point of why it should not be a part of it, is because a gifting between parents and their children is not seen as collaborative consumption. He sees the collaborative consumption as a "...middle ground between sharing and marketplace exchange, with elements of both" [3]

The internet era The internet has helped us facilitate old ways of sharing on a large scale. It started in the web 1.0 era where people could passively receive information, and it facilitated the breeding ground for web 2.0 where people started to communicate, share, and it let the users interact more freely with each other [47]. This facilitated the growth of collaborative consumption systems online that is highly present as of today. And we can divide these systems into categories, that will be presented in the following section
What’s mine is yours: The rise of collaborative consumption

Rachel Botsman and Roo Rogers book What’s Mine is Yours [53] explores the rise of collaborative consumption. It presents the historical perspective on consumer use, how we used to consume and the transformation that we are situated in, in the 21st century. The book also describes how the mobile and internet revolution is helping us create communities giving us access to strangers and friends, services that can help us lend instead of buying and re-distribute items that you don’t need anymore or vice versa.

Collaborative consumption systems

Botsman and Rogers divided today’s collaborative consumption into three different systems; Product Service Systems, Redistributed Markets and Collaborative Lifestyles. We will elaborate and explain the differences of these systems in the upcoming section.

Product Service Systems - Where access is better than ownership

Get the benefit of a product without owning it outright. Privately owned goods can be shared or rented through a peer to peer service. You don’t need to buy a Ferrari for hundreds of dollars; you can just rent it and enjoy the feeling of actually having one for a certain amount of time. Or a power drill, that is used maximum 20 minutes of its life time, and you are not interested in the power drill itself, you want the hole it makes. Or the third example, how Netflix disrupted its industry, you are not interested in having the DVD itself, you want to watch the film that it’s on the DVD. It disrupts the old fashioned traditional industries based on individual and private ownership [53]. Services like these often come with environmental advantages as individually owned products with limited usage is replaced with a shared service that maximizes its utility. Services such as Uber, Lyft, Zipcar, Skylib, Netflix, Spotify are examples of product service systems.

Redistribution markets

Preowned goods from someone or somewhere that they / you don’t need anymore. It can be given away, sold or swapped. It can be like an online flea-market, where you put up goods that you want to sell or get rid of. The model is based on the lifecycle of a product; it doesn’t need to be finished or ruined after one person’s use. It disrupts the saying “Buy more” and “buy new” [53]. Internet based peer-to-peer marketplaces such as Craigslist, eBay, Finn.no and Snapsale connects anonymous strangers. While others connects people who know each other. The environmental benefit from redistributing is that we don’t throw things
away. We give the items a new life, and we prevent the demanding part from buying it brand new somewhere else. They stretch out the lifecycle of a product. Services such as Craigslist, eBay, Amazon, Wallapop, Finn torget, Snapsale and Tise are examples of redistribution markets.

**Collaborative Lifestyles**  Collaborative lifestyles are the model where people share and exchange less tangible assets such as time, space, skills for money [53]. This model includes services that rent out underutilised assets like office spaces, cars in the neighbourhood, parking spots, etc. If you need a place to work, while you are travelling to another city, such services can provide you a working space. If you need a place to stay for the night, you can access services like Couchsurfing or Airbnb. If you need to use a car for the weekend, you can access Nabobil or Zipcar, and for that car, you need a parking spot, so you access ParkatMyHouse.

We found all three systems as interesting approaches to our project, but decided to narrow the project down, and mainly focus on redistribution markets.

### 2.1.3 Motivational factors of collaborative consumption

Our goal for this master’s project is to create a service facilitating sustainable consumption. As of now, there are many existing services providing redistribution of clothing online. Through our project, we will explore new concepts and different interaction designs. In order to make designs that will be adopted by users, we will examine existing literature on the motivation factors of choosing sustainable alternatives and participating in collaborative consumption. We will also elaborate on the barriers keeping them from choosing the sustainable options. Hamari, Sjöklint and Ukkonen [29] examines different motivational factors explaining why people participate in collaborative consumption. They propose four possible categories for participation; sustainability, enjoyment, reputation and economic benefits [29]. They also distinguish the categories as intrinsic and extrinsic motivation. They consider sustainability and enjoyment as intrinsic motivation and economic benefits and reputations as extrinsic motivation. The upcoming theoretical chapter will explain intrinsic and extrinsic motivation based on the Self-determination theory, see section 3.2.

**Barriers to sustainable consumption**

Good intentions do not always translate into actions. Although attitudes are a significant driver of consumer behaviour, peoples actual behaviour
differs from their attitudes - a phenomenon referred to as the attitude-behavior gap [2]. Research on the attitude-behavior gap in regards to clothing consumption indicates that there is a significant gap between the consumer concern regarding the natural environment and sustainable issues, and the actual consumer behaviour [2]. A study conducted by Kozar and Hiller Cornell indicates the differences in consumer concern regarding sustainable issues and actual consumer behaviour. The study states that 79 percent of the participants agreed that chemical pollutants are produced in the manufacturing and processing of synthetic fibres, 80 percent agreed that the environment is being abused, 56 percent noted the limitation of the planet’s natural resources, and 70 percent noted the potential for a major ecological disaster [31]. Despite people’s significant concern about the consumer impact on the natural environment, research by Kozar and Hiller indicates that only 25 percent stated that they were frequently trying to reduce the amount of clothing they purchased due to environmental reasons [2].

Scholars have sought to identify variables affecting behaviour, and distinguished between external and internal variables [2]. Hiller Connell [9] identify external barriers as limited availability, both considering limited access to acquisition sources and limited access to apparel with desired attributes. Social expectations were also mentioned as an external barrier keeping people from buying second-hand, as peoples perception of second-hand may not match with their expected appearance in social settings [9]. Hiller Connell’s identification of internal variables of barriers includes lack of knowledge and negative attitudes about sustainable alternatives to consumption. Lack of knowledge includes both knowledge about the relationship between environmental issues, apparel production and consumption, and also the lack of knowledge of where to acquire second-hand apparel [9].

Climate psychology

When designing to support sustainable consumption of clothes, we found climate psychology as a highly relevant field of study. Per E. Stoknes, a psychologist with a PhD in economic metaphors, has written about climate psychology, the barriers to climate action and proposed strategies for climate communication in his book What We Think About When We (Try Not to) Think About Global Warming [62].

Stoknes [62] presents Five Psychological Barriers to Climate Action, as he calls “The Five D’s”:
1. Distance

2. Doom

3. Dissonance

4. Denial

5. iDentity

**Distance** The first D is the barrier that global warming seems to be far away for the majority of us, both in time and geographical distance. “It may hit foreign others, not me or my kin” [62].

**Doom** The next barrier is about climate change being “(...) framed as an encroaching disaster that can only be addressed by loss, cost, and sacrifice, it creates a wish to avoid the topic” [62].

**Dissonance** The third D is about our the conflict between what we should do to prevent climate change, at what we usually do, like eating meat and fly, conflicts leading to dissonance in the way that makes us downplaying the facts to make us feel better. [62].

**Denial** Stoknes argue that “denial is based on self-defense, not ignorance intelligence, or lack of information” [62] and that leads to refuge from fear and guilt by others criticising our lifestyle.

**iDentity** The last D of Stoknes’ barriers is about cultural identity and how it overrides facts. As we have some fundamental values and political views, we listen to the information that supports them and filter away conflicting information. “We experience resistance to calls for change in self-identity” [62].

Based on these barriers, blocking the climate message, Stoknes [62] presents five strategies for climate communication, as a way of navigating around psychological defences. The five strategies are:

1. Social. They use the power of social networks.

2. Supportive. They employ frames that support the message with positive emotions.

4. Story-Based. They use the power of stories to create meaning and community.

5. Signals. They use indicators for feedback on societal response.

**Social** This strategy is about using the power of social networks to strengthen eco-friendly norms. Stoknes exemplifies this phenomenon by the psychologists Robert Cialdini’s experiment on the motivation for saving power. Four groups were given four different reasons for saving power: Because it’s better for the earth (sustainability), for the sake of future generations (your grandchildren), because it pays (saving money) or because your neighbours do it (social norms) [62]. The households that managed to save the most power were the ones that were given the latter reason - they compared themselves with their neighbours, which was a more effective motivation than doing it for sustainable reasons, for the future generations or saving money. This experiment is an evident proof of how the social aspect is important when motivating for more sustainable behaviour.
Supportive  A strategy of reframing the climate messages, from communicating negative messages of disaster, destruction, uncertainty, costs, high price and sacrifice, and rather frame is as insurance against risk, health, and well-being, preparedness and resilience, values and a common cause, and opportunities for innovation and job growth [62].

Simple  Making sustainable choices easier and convenient is an important factor for climate communication. If the sustainable option involves more time effort, it will be less appealing. It is not only about the effort and price itself, but how the option is presented. If it’s presented in a good way, making it seem easy and convenient, there is a huge potential in making the sustainable option choice the default option [62].

Story-Based  The power of a good story. Stoknes recommends telling stories about green growth, happiness, ethics, ecological restoration rather than the typical apocalypse stories. He also argues that the stories should be made personal, concrete, vivid, visual, humorous and should contain a strong plot and drama [62].

Signals  We need feedback knowing if we are turning in the right direction. Lack of feedback leads to confusion and helplessness. Feedback should present our impact on a local level, not just globally as we need to know if and how our individual actions affect the environment [62].

2.2 Values-led design

"Values are enduring beliefs that we hold concerning desirable modes of conduct or end-state of existence in different situations, societies and cultural contexts" [25].

Iversen, Halskov and Leong [25] address the lack of understanding of how to work with values in participatory design (PD) in their article; Values-led participatory design. They present an approach to values that differ from value-centered and value-sensitive design approaches, as they treat values as emergent and dynamic, engaging with the researcher through a dialogical process [25]. The article emphasises the crucial role of the designer; "not only the values she (or he) brings to the process but in particular how her appreciative judgement of values colours and pervades her entire stance in the design life cycle" [25].

Although Iversen et al. focus on PD, they believe that the approach can contribute to other traditions beyond PD [25]. We have used both our value
of designing for sustainability and adolescent values such as cool, explicitly in our work.

2.3 Market analysis

As our work was meant to end in a product, we felt that a good market analysis needs to be a part of the thesis. We have not managed to push the prototype quite to the level where it could be tested in real life, mostly due to time constraints. However, looking for, and evaluating potential competitors for our app, which we wanted to clearly expose our appreciation of doing something towards a more sustainable future, has been a good lesson. We describe what we learned briefly.

2.3.1 Schibsted ASA and Naspers

We feel that it’s important to point this out before we elaborate on the Norwegian market. Schibsted ASA is a Norwegian media company and one of the world’s biggest investors in online marketplaces, and a lot of these are second-hand markets, such as finn.no, Shpock and Snapsale who are present in the Norwegian market. There is also another one, Naspers, also a media company, located in Cape Town, South Africa. They are also one of the biggest owners of online marketplaces in the world, and a big investor in online marketplaces, they are on the same level as Schibsted, if not bigger.

We believe it’s important to map out these two, as they determine much of what is happening in the online second-hand market globally, and they control much of it. It’s also the case of why it is a lot of providers at this point.

2.3.2 Redistribution services on the Norwegian market

Norwegian services

Finn.no  Finn.no is a marketplace for buying and selling, they have been present on the market since the early 2000s. They had 3.9 million private ads listed in 2015, 680 525 of these ads were under the category: Clothes, cosmetics, and accessories, a category increased by 60 percent from 2014 - 2015 [15]. Finn.no has been the biggest online service in Norway for selling and buying second-hand since it entered the market. This service also provides lots of other things as well, such as job ads, housing ads,
travel among other things. When we refer to this service in our thesis, we refer to the subcategory “Torget” that directly translated means “market square”, and it’s a free ad space for things like furniture, art, antiques as well as clothing.

**Tise**  Tise was founded in 2014 [66], it’s a mobile app for buying and selling second-hand, and it looks a lot like Instagram. One of Norway’s biggest influencers when it comes to reuse and repair with an environmentally conscious attitude, Jenny Skavlan, invested and joined this team a year ago, making this app popular. Tise’s target group is young people and focuses on the stylish look, like Instagram photos. Making the user more aware of how they portray their item before they put it up for sale.

**Snapsale**  Snapsale is a service founded in 2014, it gained traction early since it was the only marketplace optimised for mobile phone use at that time, and it was designed for making it easier and more fun to buy and sell clothes. Snapsale’s market advantage was that they used new technology such as picture recognition and machine learning to provide the easiest way to post a sale and search for items. Snapsale’s target group was girls 15 - 30 years old.

### 2.3.3 Redistribution Services from other countries

**Shpock**  Shpock is a redistribution market service founded in Austria 2012. In 2015 91 percent of the stakes in their business was sold to Schibsted [28]. It has been present in the Norwegian market since. The app provides a second-hand market platform, and their chosen design seems like targeting a young crowd.

**Letgo**  Letgo is a redistribution service from New York, founded in 2015 with Naspers as one of the investors [34]. The app came into the Norwegian market in 2016. The concept is similar to Shpock, but there are some differences in the UI.

**Sellpy**  A Swedish service operating in Sweden Sellpy got a quite unique way to sell second hand. It’s a hybrid between regular second-hand shops and these emerging second-hand peer to peer services that’s blooming online these days. They send you a bag, that looks a lot like the blue IKEA-bag, then you fill it up with clothes you don’t use anymore, they pick it
up at your house, they clean it, style it and takes professional photos of it at their studio. Then they put it out in their online shop, and if it gets sold, you split the money 50/50 with Sellpy. The service is only available in Sweden.[57]

**Facebook groups**  As the most present social media channel in the latest years, Facebook provides a feature called groups, every member can create a group and add members to it. In the recent years several buy and sell group has emerged via this function. [48] It is different in terms of that a private person can create its own market place, and it’s often limited to geographical areas such as a small city or municipality or niche markets like for example "horse equipment".

### 2.3.4 Lending services

**Skylib**  As a lending service without a fee, Skylib went on the market in 2012 [58]. Their goal was to make it easier for people to lend and lend out to people nearby. Skylib was a predecessor of Snapsale.

**FJONG**  FJONG is a newly established service for renting out and renting outfits. It’s targeted towards private persons, designers, and shops. Their value proposition is to expand people’s wardrobes to a lower price with a green perspective. At this point, targeted towards girls, as they mostly rent out dresses for specific occasions. [16]

**SoBo - Something Borrowed**  It’s a service for lending and lending out clothes peer to peer, not yet launched.[59]

**Leieting.no**  Lending service with a fee, on this service you can lease and lease out things that you own. Their business model is more like finn.no’s - Torget, but instead of buying, it’s things for rent. They have several categories from cars and real estate to dresses and chocolate fountains.[37]

As of today, the market is changing constantly, and there are frequently new services available. The mobile second-hand service market in Norway has been in a state of perfect competition for a while now (2017), no one has the biggest market shares, the in-app prices are steering the market and they provide almost the same value. [17]

There is also other types of services popping up, such as nabobil.no, AirBnB, Bilkollektivet, etc. This is services who got a good traction in the
Norwegian market and that are placed within a collaborative consumption system. [53]
Chapter 3

Theoretical framework

After a long journey trying to find a suitable lens to see our project through, we stumbled upon a theoretical framework called Intentional Design for Innovation. We found this framework as a good fit, regarding our target group and our expectations to what we saw as our research aim in this project. This theoretical framework is based on what is joy, how to design for joy and what lies beneath this term, and shortly after reading literature based on this framework, we decided to proceed with this theory as a framework for our research.

3.1 Intentional Design for innovation

What makes things cool? That’s the question Karen Holtzblatt asked in her article about intentional design. She conducted a study named “The cool project” [22] The analysis of the data revealed the themes of cool, and what makes a cool experience and how this implicates product design. The outcome of this study ended in “The wheel of joy” and “the Triangle of Design” that we will shortly elaborate on. But first, Karen’s definition of joy comes from where joy in life happens, and it needs to fulfil certain kind of core human motivations such as; Accomplishment, Connection, Identity and sensation. Joy isn’t something that comes from a feature, some trendy colours, cool graphics, or fewer clicks to complete a task [22] “The experience of cool is compelling because it is tightly connected to the experience of joy and delight”

“How can something as simple and limited as a technical gadget or a piece of software create an experience as profound joy?” - [22]

Figure 3.1(left) Wheel of joy represent the core motivations of joy in life,
while figure 3.1(right) The triangle of design represents how a product is put together. Together these define the aspect of life and experiences that designers need to take into account when designing for cool [22]. When all or some of these aspects are fulfilled, the cooler the product is experienced [22]

Each segment of the wheel of joy represents aspects of life, that cool product enhances and how they represent and generate joy in life.

### 3.1.1 The wheel of joy - Joy in life

**Accomplishment**

After the introduction of smart phones, we can now do better and faster than 20 years ago, Everything that makes up our days such as work, leisure, activities and chores needs to be accomplished. The joy of accomplishment is that we can now do our life better and that we recognise that we do thing faster than before. “The joy of accomplishment is our recognition that we can now do our life better than before” [22]. The joy in accomplishment is our primary motive to keep going, complete something and move along with the unstoppable momentum of life. The cool of accomplishment changes our focus from task to life, we try to do everything and fit it in our lives, such as work, leisure activities and fun. These activities can include:

- Core activities that call for time and attention
  - Work, private economy, vacation bookings
- Core activities that we want to get done fast and in the dead time of life
– Checking our bank account, sending out important emails

• Moments of time when we take a mental break or are waiting - good for checking a quick email or playing a game.

– Casual gaming, watching YouTube videos.

This segment challenges the idea of designing for a task, and how this product value can be placed into our time slots of our everyday lives.

Connection

Connection is a basic human need; it brings us all the way to our very first beginning of humankind on planet earth, we need connection, a relationship with someone to feel that we belong. Cool tools help us to connect with people who matter to us, and that is what makes them cool [22] From the mobile phone’s features where we can text, have collaborative games, maintain social relationships with others by just dropping by when you are on the run. This also includes cool tools where you can find things to do, such as searching for a movie to watch together with friends, watching sports events, play video games and find interesting events [22]

Identity

“Finding out who you are and how you will contribute to the world is the basic life task” [22] Our quest for self-definition continues throughout our life cycle, from adolescence years, to become adults, parents, grandparents, to retirement. Different phases in life faces different challenges. It faces its most intense period during adolescence years. Cool tools help us find out what others in the same phase as us are doing. It helps us find examples of behaviours, clothes to wear, values and activities. We’re trying different things out, and see if it feels like a “fit for me” [22] YouTube, for example, is a channel for people to share videos, comments and it relieves boredom in dead times. Not only this, YouTube provides people to announce their existence, and it can make people celebrities from their own living room, they can create content for other people to watch for a low cost of money. We can identify ourselves with others, and we can share our life with others. Facebook is another example where people connect, shares and chat, like a living cave wall [22].
Sensation

Sensation is a perception of stimuli through the senses, makes us aware of what we are sensing. A visceral experience, being drawn into the pure sensation of life. Laughing at something funny or feel the sensation of joy when you are riding a roller coaster. This falls into two different categories; sensory immersion creating time out of time and moments of pure sensual delight. Products that give us these sensory immersions take us away from everyday life, like a really cool video game, absorbing us for hours. Elements that create sensual delight can be built into everything, such as a compelling colour, a well-designed gadget with a smooth surface. Misplaced design may repel the user, such as annoying sounds, boring games and badly designed apps that give you a headache.

The key for design is making sensation a natural part of your product and experience. Such as natural playfulness, and it doesn’t need to be the dominant reason for being cool. They can create a cool moment.

3.1.2 The triangle of Design - Joy in use

The triangle of design goes beyond the usual focus on usability. It’s not about how many steps you take to fix a problem. Joy in use is a holistic approach that tries to achieve transformation in life by providing and accessing capabilities [22].

We are now elaborating on each segment in the triangle of Design: Joy in use.

Direct into action

Cool tools let the user achieve their intent right away, and in the most natural way for the user, without any detents, or anything that stops the user from its flow. The most direct experience leaves the people with the feeling of their original interactions with the world. We reach, grab, touch, hear to get feedback from what we’re interacting with. This is also placed into technology; we have a mental model of what action leads to which outcome. Now that the technology has matured, we are more able to mimic the physical world, we can even put technology into physical objects. Smart phones allows us to reach the world from our pockets. Direct into action concerns our intended interaction will lead instantly into a preferred outcome. Like pressing one button to buy something, you press the notification on your phone to instantly see the message you received, adding a WYSIWYG editor to your content manager system. Everything
should be designed so the user can go directly into action.

The hassle factor

The hassle factor is the direct into action’s evil twin. Hassle is a huge part of our regular life. “Every invention removes hassle from what came before it, but every invention also introduces new hassle” Holtzblatt, p. 45, 2011. Like signing up with Facebook has relieved us from those long registration forms, but it brings the hassle by not knowing exactly what you share, the invention of the dishwasher removed the hassle of doing the dishes, but it takes more time for the dishwasher to be finished. When getting your monthly subscription to public transport on your phone, it removes the hassle of bringing around a card just for that purpose, but it introduces the hassle when not having battery on your phone, and the public transport inspectors enter the bus.

“But when we get it right, we achieve the “ahh” of relief, and that is cool.” [22]

The delta

The delta is the context necessary to achieve Direct into action in the very beginning of the product in use. “The delta highlights the learning stretch built into a product” [22] After you learn something, it becomes a natural part of your life without any reflections when doing it, for example walking, swimming and bicycling. After you learn it, it becomes a natural part of your life. And it requires no thoughts or reflection when doing it; it becomes an extension of yourself. The same thing applies for technology, when you, for example, learn to write on a computer, it acquires no further capabilities. It’s integrated into your mind. On the other hand, some computer programs require a whole lot more of you. Programs with big conceptual models and a long learning stretch. If you’re not familiar with how it works, the worst case of putting the user in this situation is that the user can abandoned use. Learning the UI in itself is not usually a goal for people when they download new software or a new app. And we have to remember that different generations have different capabilities, young girls in their early adulthood are used to the technology we have today, they have learned it through childhood, and they are a lot more experienced than for example elderly. “The design challenge for “the delta” is to bridge the gap between how the customer interacts with the world now and the technology prowess assumed by your product” Products that go directly
into action without any requirements of new knowledge are cool. They did nothing to get going, and the magic just happens.

**How to create the "can’t go back experience"**

The wheel of joy represents four key motivations for making a satisfying product, which can facilitate joy. The triangle of design organised by core factors of the cool experience. The goal of designing for cool, is to make a “can’t go back experience”. The result of the cool project revealed that the most important factor is accomplishment, and the most dominant factor affecting the cool experience. After this comes accomplishment, then connection. Identity and simple sensation are more enhancing factors than the accomplishment and connection that works as more dominant factors. Addressing more than minor of these factors leads to a more intense, and cooler experience.

But why should we have “cool” in mind when designing? “The cool Concepts invites designers to take on a new level of consciousness, focusing on core human motives” [22] We need to have these factors in mind when designing for a more enjoyable experience. Whether it is for leisure, work or other contexts. As long as it’s not interrupting the experience as a whole.

### 3.2 Self-Determination Theory

Self-Determination Theory (SDT) is not our primary theoretical focus in this thesis, but we decided to include it in this section so we can explain some of the different aspects that are a part of SDT. It will be used briefly later in this thesis.

*Self-Determination Theory is a psychological theory within the humanistic field* [63].

Self-Determination Theory is a psychological theory initially developed by Edward L. Deci and Richard M. Ryan [12]. The theory revolves around human motivation and personality. It’s based on the investigation of people’s self-motivation and personality integration to enhance positive processes for personality development and behavioural self-regulation [14]. By empirical processes they have identified three psychological needs: the need for competence, relatedness, and autonomy [14]. We will now elaborate
on these three needs.

3.2.1 Competence

To feel competent is a fundamental need, the need of the feeling that you master new challenges and gain new skills. Competence is about this feeling, that the activity or task you are performing is something you master and that it is challenging and growth inducing. Humans need to feel that they are doing well at certain things, in order to be satisfied. In that sense that the activity becomes its own reward. [14]

3.2.2 Relatedness

Relatedness is about having a meaningful relationship with other people; it’s important for human beings to feel that they belong in a group and that you share the same goal of that group. [14] Relatedness is about this, to feel motivated we need to have a meaningful relationship, contact and a shared goal with a group of people.

3.2.3 Autonomy

Autonomy is the feeling of being independent, that we are regulating our own lives, not pushed around by some authority. We need to feel like we’re making our own choices, that we have a free mind. If we experience some sense of autonomy, we feel more excited and engaged. We feel that we control our own lives and that we have a free will to do a specific task, achieve something or reach a specific goal.[14] These three needs are important to be aware of, before we move ahead to elaborate on motivation.

3.2.4 Extrinsic and intrinsic motivation

Intrinsic motivation

Intrinsic motivation is achieved when you feel internal excitement, interest and inherent satisfaction when you are working on a task, and there is no external reward for doing it nor consequence for not doing it. [13] Intrinsic motivation is important for inherent interest, and the growth of knowledge and skills. To achieve intrinsic motivation the three, latter mentioned, fundamental needs, have to be internally present the feeling of competence, relatedness, and autonomy.

It is important to mention that intrinsic motivation is something that exists in the nexus between a person and a task [13]. There are intrinsically
interesting tasks, which most people find to be intrinsically interesting, but that is about improved task design or selection to enhance motivation [13]. To be clear, this doesn’t apply to this elaboration on this theory. You can use concepts in this theory to enhance and design better tasks.

On the other hand, we have extrinsic motivation.

**Extrinsic motivation**

Extrinsic motivation can be easily explained as the classic picture of a rabbit with a carrot on a stick hanging over her, known as “Carrot and stick” [7]. Offering a combination of reward and punishment. You seduce people with a reward and you walk behind them with a club. There is more to it than that. “Extrinsic motivation is a construct that pertains whenever an activity is done in order to attain some separable outcome” [13]. Compared with the intrinsic motivation that you are doing for the enjoyment of the task itself, rather than the instrumental value [13]. Extrinsic motivation has a bigger range, an extrinsically motivated behaviour can range from unwillingness, to passive compliance, to active personal commitment [13]. It doesn’t need to be unmotivated. Ryan and Deci have divided extrinsic motivation into four categories, and the categories act as a scale, depending on the actor’s behaviour, which psychological needs is present, which is not.

The categories are; *external regulation*, *introjection*, *identification*, and *integration* [13] see figure 3.2.

**External regulation** is something you do to satisfy an external demand. The perceived experience is that you feel like you are being controlled, and the activity can be alienated. Internal needs such as autonomy and competence are absent.

**Introjection regulation** feels controlling and regulatory. A person performing an activity that is experienced as introjection regulation, is doing it for avoiding guilt or anxiety. They are doing it to enhance or to maintain their self-esteem, and obtain or sustain the feeling of worth. So the introjection itself could be perceived as internal, but it is not a fully part of the self. The external perceived locus of causality (EPLOC) is somewhat external.

**Identification** , when you accept the regulation as your own, and you identify with the personal importance of a behaviour [13]. For example: “A
Figure 3.2: Taxonomy of human motivation

boy who memorizes spelling lists because he sees it as relevant to writing, which he values as a life goal, has identified with the value of this learning activity.” [13].

Integration, the most autonomous form of extrinsic motivation, more of the fundamental needs is present, this occurs when identified regulations have been fully assimilated to the self [13]. It shares many qualities with intrinsic motivation, but it is still extrinsic motivation because this behaviour is done for its presumed instrumental value [13].
Chapter 4

Methodological framework

4.1 Qualitative research approach

We have chosen to conduct a qualitative research process. Qualitative research methods overall goal is to understand a phenomenon from the point of view of the participants and their particular context [42]. Our goal is to understand young girls behaviour towards second-hand consumption before we can improve. It is better to understand this phenomenon through the mind of the participants rather than investigating it through qualitative experiments and quantified data. We want to know what they think, feel and how they act in a particular context to understand and gain knowledge. Unlike a quantitative research approach where data is quantified. Qualitative research studies emphasis on the qualities of entities that is not experimentally examined or measured, compared with quantitative studies [11]. Because our research question intends to investigate and understand young girls behaviour and in this case not necessarily appropriate for an experimentally examined study. We strive to understand social experience, socially constructed nature of reality, the intimate relationship with the researcher research subject and what is studied [11].

4.2 Ontology, Epistemology, and Paradigm

To explain how we should go about our findings, we need to make a few things clear. Where are we positioned as researchers? Our philosophical perspective in our research is positioned within the interpretive paradigm. Where we start out with the assumption that reality is socially constructed [42] and there is no single path or particular method to knowledge [67]. The phenomenon of interest is studied through in-depth examination [65]. The
access to a socially constructed reality is through language, consciousness and shared meanings [42]. The movement of understanding is moving from “the whole to the part and back to the whole” The interpretivist Gadamer believes that it is a circular relationship and that it tries to understand human beings in a social context [18]

We want to look at sustainable consumption phenomenon and try to understand it through the meaning that young girls assign to them and try to understand their needs in their social context. We don’t want to look at it from a critical perspective, we want to understand them and then improve the user experience of their regular clothing consumption and motivate and support more sustainable consumption habits.

4.3 Research Methodology

For us to understand the phenomenon with the philosophical assumption that the reality is socially constructed and can be reached through in-depth examination, to understand human beings in a social context. We need a strategy of inquiry, what methods and research tools do we need to collect empirical material and analyse. Experiences can be represented in multiple ways, and we need a plan of action to examine the subject matter of inquiry. That helps us to reach the goal of this thesis; to answer our research question.

We have selected two methodologies, our primary methodology is User-Centered Design, and our secondary methodology is Service Design. We see User-Centered Design combined with Service Design as a good fit to our thesis. We want to look at how our user group perceives a service as a whole, not only the product itself. By combining UCD process model that has the product in focus, and service design that has the service from end to end in focus, we believe that it will guide us in the most suitable direction.

4.3.1 User Centered Design

User-Centered Design is an iterative design process, with active user involvement to help us get a clear understanding of the user needs and their tasks, so the designer can identify the task requirements, design prototypes in different fidelities and evaluate it. It’s a multi-disciplinary approach, with the use of many different kinds of methods [36].

User-Centered Design originated from Donald Norman, he introduced this notion in the 1980s, and this term has been widely used as a philosophy
and methodology in the design research field ever since [1]. User Centered Design is a broad term that helps us describe how the end-users can help designers influence how a design takes shape. [1] The term was introduced by Norman and Draper in the book called “User-Centered System Design: New Perspectives on Human-Computer Interaction” [45].

The philosophy behind UCD when it emerged was to emphasize on the purpose of the system, that its purpose is to serve the user, and that the needs of the users should dominate rather than the technology itself [45].

“User-centered design emphasises that the purpose of the system is to serve the user, not to use a specific technology, not to be an elegant piece of programming. The needs of the users should dominate the design of the interface, and the needs of the interface should dominate the design of the rest of the system” [45]

In the wake of UCD’s 30-year long presence in the design field, many new philosophies, methodologies and methods have emerged from it, such as: Research through Design, co-creation [56], Service Design, User Experience design among many others. UCD as a methodology may be seen as obsolescent and that its outdated [56]. We rather look at it as a dynamic approach to reach our goal and a good fit considering the user involvement and the process itself.

4.3.2 Service Design

Service Design is a methodology that emerged more recently in the design field. There is not a single definition that can describe SD, “Frankly, one of the great strengths of design is that we have not settled on a single definition. Fields in which definition is now a settled matter tend to be lethargic, dying, or dead fields, where inquiry no longer provides challenges to what is accepted as truth.” — Richard Buchanan, 2001 [61]. If you had asked 10 people to define SD, you would get 11 different answers [61]. Service Design is about designing with a holistic view in mind, considering all pieces in a service, not just the product itself, but the intangible experience as a whole. Of course, the product is important, but how does the product behave in its ecological environment? When should the customer be in contact with the service? This is some of the concerns that Service Design provides. Stickdorn has mapped out five core principles of Service Design thinking: 1. User centered, 2. Co creative, 3. Sequencing, 4 Evidencing, 5 Holistic [61]
SD shares a lot of its methods from familiar design disciplines such as role playing, creation of customer personas, prototyping, storytelling, cultural probes, observations and design workshops among others. SD has also brought new techniques and methods into the design field such as: Touch Points, Customer Journey Mapping and blueprints. And evaluation methods such as role play.

**Customer Journey Mapping**  This method helps us map out a series of interactions in a customer journey, throughout the experience, from pre-service, service to post-service. It’s a tool that helps us sequence actions in a linear time, from a customer’s point of view. Customer journey mapping is a dynamic tool, and it can easily be customised based on which needs you are planning to design for. The only thing that is consistent is the mapping of touch points, and that it needs to be a time line from pre to post. It can also contain aspects such as mood, feelings, expectations, thoughts, objects, channels and other aspects that may be suitable for your service. A touchpoint is every contact point between the customer and the provider. It can be humans, places, objects or processes. When you map out a customer journey, it’s important to take all likely actions into a count. Bad experiences happen, and it may be several reasons for that, such as the user’s mood, feelings or other external things. That why it is important to consider different kinds of likely events. For example, the experience of being at the airport for a person that is scared of flying is most likely having a different experience than a person that is not scared of flying. The benefits of using customer journey maps are that we get common goal and vision, both with users and other stakeholders. It can help us uncover hidden truth, and it can facilitate collaboration. It also gives us a holistic view of the service as a whole.

## 4.4 Methods

We chose to mix different methods, which we felt as appropriate for this project. There is a mix of traditional UCD-methods to heavily used service design methods.

### 4.4.1 Background interviews and thematic analysis

Background interviews is a way of collecting data that explores users needs and expectations. This method of collecting data related to users needs and expectations is used at the beginning of the design cycle [1].
### Table 4.1: Phases of thematic analysis [6]

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description of the process</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Familiarizing yourself with your data</td>
<td>Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas</td>
</tr>
<tr>
<td>2 Generating initial codes</td>
<td>Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code</td>
</tr>
<tr>
<td>3 Searching for themes</td>
<td>Collating codes into potential themes, gathering all data relevant to each potential theme</td>
</tr>
<tr>
<td>4 Reviewing themes</td>
<td>Checking if the themes work in relation to the codes extracts (Level 1) and the entire data set (Level 2), generating a thematic ‘map’ of the analysis</td>
</tr>
<tr>
<td>5 Defining and naming themes</td>
<td>Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme</td>
</tr>
<tr>
<td>6 Producing the report</td>
<td>The final opportunity for analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis</td>
</tr>
</tbody>
</table>

There are different approaches to interviews, and the different approaches can be divided into four main categories: open-ended or unstructured, structured, semi-structured and group interviews [51]. We decided on the semi-structured approach for our background interviews, combining both closed and open-ended questions. Semi-structured interviews are based on a basic script for guidance to make sure the same topics are covered with each interviewee [51].

Thematic analysis is our chosen method for analysing the data. Thematic analysis involves the searching across a data set - in our case, transcribed interviews - to find repeated patterns of meaning [6]. Braun and Clarke [6] presents a step-by-step guide for thematic analysis which we will use when analysing our background interviews, see table 4.1.
4.4.2 Ideation tools

**Personas**  "Personas are rich descriptions of typical users of the product under development that the designers can focus on and design the product for" [51]. We created personas based on our user research, to concertize our target audience.

**Mood boards** Traditionally used in fashion and interior design, but may be used to capture the desired feel of a new product [51]. We used mood boards as a tool early on in the design process to visualize our ideas regarding look and feel.

4.4.3 Prototyping techniques

**Paper sketches and wireframing** We used paper sketches to map out early concepts and ideas, to help us visualise. Wireframing helped us visualising the flow. This is a heavily used method in UCD, in the early stage in the process. It also helps us sketch out feature ideas later in the design cycle.

**Sketch software** We used the design tool names Sketch, for high-fidelity sketching.

**High-fidelity prototyping in Marvel** Marvel as a tool to implement interaction, and make the prototypes ready for testing.

4.4.4 Concept testing and workshops

**Concept testing** This type of testing is formative, showing the participants an approximation of a product or a service to capture the key essence of the concept, in order to see if it meets the needs and requirements of the target group [54]. We did this type of testing in combination with a workshop.

"Concept Testing: a researcher shares an approximation of a product or service that captures the key essence (the value proposition) of a new concept or product in order to determine if it meets the needs of the target audience; it can be done one-on-one or with larger numbers of participants, and either in person or online."

- Nielsen and Norman Group [54]
Workshop After the concept testing, we held a workshop that mainly consisted of a verbal discussion and some ideation around our concepts.

4.4.5 Heuristic evaluation

We chose to conduct a heuristic evaluation to discover usability problems in the user interface of our app. Choosing several heuristics to guide our expert evaluators.

"Heuristic evaluation is a usability engineering method for finding the usability problems in a user interface design so that they can be attended to as part of an iterative design process. Heuristic evaluation involves having a small set of evaluators examine the interface and judge its compliance with recognized usability principles (the "heuristics")." - Jakob Nielsen [27]

4.4.6 Customer journey mapping

We are going to do a customer journey map of our final prototype, to show different contexts of use in different scenarios. We are going to use our personas to map out different user scenarios in a customer journey.

A customer journey map is a method that emerged from the service design methodology.

4.5 Ethical considerations

As researchers, we have a great responsibility on how the research is conducted. Every decision must be considered with ethics in mind. Not only in terms of informed consent but how we act and proceeds as researchers.

4.5.1 Ethics in our research

Guillemin and Gillam state that it’s two different dimensions to ethics in research. The first one is procedural ethics, which usually involves seeking for approval form relevant ethics committees, for us that means NSD. The second "Ethics in practice" is the everyday ethical issues that arise when doing research. [20]

Procedural ethics

For our procedural ethics, we applied to NSD - Norwegian Center for research data, to get our research proposal approved. We used informed consent (appendix A) when conducting our interviews, and our evaluation,
every step in the research process that included research participants were informed about their rights as research participants.

We got our research proposal approved and followed given guidelines for storage of data and informed consents in every step were external participants were involved. At the end of the project, we deleted all data files that could be traced back to the participants.

4.5.2 User group

Our primary user group is girls aged 15 - 20 years old, we did not collect any sensitive personal data or any identifying information. So we did not need any consent from the parents of the participants that were under 18 years old.

Ethics in practice

Ethics in practice concerns the day to day ethical issues which is a natural part of doing research.

During the interviews we were aware of some aspects:

- We needed to be aware of how we phrased our selves, not using language that was hard to understand or interpret for the participants.
- Go through the informed consent in a "human" matter, so they were aware of their rights
- We needed to be aware of what could be insulting questions, regarding their age group and social context. For example: Asking about their economic situation, that could be perceived as insulting in the context of asking about their fashion identity and so on.
- Not ask directly about certain things

Ethical reflexivity The values-led design approach (see section 2.2), can be used describing our way of reflecting our values and their impact on the research process. Our values as researchers influenced our choice of project, research question and also how the design process was carried out. We brought with us values like concern for environmental issues, critical views of today’s over-consumption and a wish to contribute to a more sustainable clothing consumption. As well as bringing in youth values such as cool. Our fundamental values coloured every step of the design cycle, and our values also emerged during the process of getting a better understanding of the research field.
Chapter 5

The service

Our goal is to create a new concept supporting sustainable consumption among young girls. We want to create awareness about circular fashion and the environmental impact of clothing consumption and encourage young girls to make more sustainable choices. To achieve this goal, we have chosen an iterative UCD process model. We started out with some ideas and thoughts of possible concepts, but our aim was to let the ideas evolve through an iterative process of user research, ideation, and evaluation, and eventually end up with one final concept presented as a high-fidelity prototype.

5.1 The process

As mentioned, we chose to conduct an iterative process. We decided on a process model containing four steps: 1. Understand and specify the context of use, 2. Specify user requirements ideation, 3. Produce design solutions, and 4. Evaluate, see figure 5.1

5.2 Iteration 1

5.2.1 Step 1: Understand and specify the context of use

Market research

Our market research in chapter two shows that the online market for second-hand has increased the last couple of years, both in use and number of available services. There are several big mobile classified services for second-hand on the Norwegian market, such as Tise, finn.no, Shpock and Letgo. It has also appeared several digital services for fashion rental.
Understand and specify context of use
Specify user requirements & Ideation
Produce design solutions
Designed solutions meets user requirements
Evaluate
Plan the process

Figure 5.1: The design process
User research - background interviews

To understand our user group’s needs and expectations, we conducted semi-structured interviews with five girls at the age range 16 - 18. Of practical reasons, two of the girls attended an interview together, so we ended up with four interview sessions with five participants. We made an interview guide which contained an introduction of ourselves and our research, a warm up part with a few easy questions, a main section, a cool down part and some concluding words at the end. We conducted a pilot interview to test our interview guide. The pilot made us aware of which questions worked well in practice, and which that needed some modification. The interviews lasted for about 30 minutes to 60 minutes each and were conducted at a meeting room in at the Department of Informatics at UiO. We chose to record audio while interviewing as it was easier focusing on the actual interview and rather than on our notes.

Thematic analysis

As mentioned in the methodological chapter, we chose thematic analysis to find repeated patterns and meanings. The first phase of Braun and Clarke’s [6] guide to thematic analysis, is to familiarise with the data. We transcribed all four interviews and ended up with nearly 20 000 words of data for further analysis. The process of transcribing was helpful as we familiarised ourselves with our data, and discovered new meanings and sayings that we may not have noticed or forgotten. Listening to the interviews in retrospect, made it easier to actually listen to every word being said while not having to focus on conducting the interview. We were also noting down thoughts and ideas during the transcription.

The next step was to generate initial codes and collating data relevant to each code. We used Post-it notes to visualise potential codes and associated data to get an overview of patterns and the most interesting findings. See figure 5.2
The third phase of Braun and Clarke’s [6] guide is searching for themes, by considering how “different codes may combine to form an overarching theme”. The next phases are reviewing the themes and eventually defining and naming the themes. The result of this phase is shown in the thematic map, see figure 5.3.

After several rounds of categorising our findings in codes and themes, we eventually ended up with three main themes; Clothes not in use, shopping and second-hand. The main theme “clothes not in use” represents what the girls said about clothes they are not using, what they consider doing with them and what day usually do with them. The main theme shopping is divided into three sub-themes; inspiration, shopping habits
and context. The sub-theme inspiration represents where the girls look for fashion inspiration or get casual inspiration. The sub-theme context represents where the shopping takes place, what kinds of stores, if the prefer shopping malls, chain stores, individual stores, high end, online shopping etc. The sub-theme shopping habits represents their sayings about the degree of planning involved when shopping, are they impulse shoppers or do they prefer planning their purchases? The third main theme; second hand is the covers most of our data. We decided dividing it into sub-themes of selling and buying; each sub-theme is further divided into themes of Motivation, Experience, Barriers and Associations. The theme Motivation covers what the girls said about the potential motivation for shopping second-hand and why they may choose to sell or give away their own wardrobe. Experience covers the girls’ experiences with shopping or selling second-hand. The theme Barriers gathers the girl’s thoughts on what keeps them from buying and selling second-hand. The last theme, Associations, is overall associations of second-hand clothing.

Findings

In this section, we will look into our actual findings, exemplified with extracts from the interviews. Our findings are organised by the themes described above.

Clothes not in use  Do they have clothes that are not in use? And what are their thought on keeping these items? All the respondents answered that more or less of their wardrobe was never in use. Some of them liked keeping their unused clothes for a while, as they thought they might want the items in the future. One of the girls said that if she went through all her clothes, she would probably be left with approximately ten items actually in use. She told us she had clothes just lying there for two years, that she never wears or likes, but still keeps considering it may come in use some day. Some of her clothes she regretted buying and considered returning, but never did, and then she has to get rid of the items by giving them away.

What do they do with the unused items of their wardrobe? And what are they considering doing with their current items which are not in use? None of the respondents had arranged or attended swap parties, but some of them mentioned that they occasionally swapped clothes with friends. They all claimed never or rarely throwing away unless they are worn out, but either give them away to friends, family or charity.
Shopping  Inspiration - Where do they get fashion inspiration? The girls mentioned social medias as Instagram and Facebook as channels for inspiration. Some also mentioned bloggers as fashion influencers. One girl was actively looking for inspiration from blogs and social media when planning a purchase, while the others more casually exposed to fashion influencers through social media.

Context - Where do they shop? Thier respondents had different preferences for location and types of stores. One girl preferred going to large shopping malls, she loved shopping, but was not so fond of going from store to store. She does not do online shopping as she considers it risky not knowing the fit of the clothes. Another girl did not like physical stores - “I do most of my shopping online, I’m not so fond of going shopping (..) it’s easier just ‘clicking it’ home“. When she visits the town centre, she prefers spending her time at cafes rather than shopping.

When is comes to types of stores and price range, all of the respondents claimed to be conscious about price, and they usually do their shopping at low-price stores. Two of the girls were frequently shopping at second-hand stores, considering both pricing and the uniqueness of the items available there. Some of the girls also had experience with second-hand mobile services; we will elaborate this further in the section covering theme Second-hand.

Shopping habits - Planning or impulse? Most of the girls preferred planning their purchases, but all of them were occasionally impulse buyers. The impulse purchases were often due to needing outfits for special occasions or if they came across something nice when shopping.

Second-hand  The main theme second-hand is divided into the sub-themes buying and selling. Our interview questions focused on their experience, overall associations, barriers and motivation related to second-hand. We started out asking the girls about their thoughts and associations about buying second-hand clothes.

Buying second-hand  Three out of four respondents had experience buying second-hand, either in physical stores or online. Two of them were second-hand enthusiasts, and frequently buying vintage items at second-hand stores. All of them had visited online second-hand services like finn.no, Snapsale and Tise, but only two of them had actually bought used
clothes online; one using Tise and the other one using finn.no. One of the girls that had no experience buying second-hand items, despite have been looking at second-hand stores and online second-hand services. She explained that when she was visiting second-hand stores, she was often looking for a specific item, and it was hard finding what she was looking for. She had also tried searching finn.no for handbags and shoes, but she did not find what she was looking for there either.

Their overall associations about second-hand were positive; some were more enthusiastic than others. Three of the respondents really liked the concept of buying second-hand, saying: "I see no difference between used and new, really", “It feels better buying used clothes, rather than just buying something from H&M” and “If I really want something that I know is very expensive, it doesn’t matter if it’s used a couple of times or a bit more than that, in my opinion”. The other two respondents were quite positive and open-minded about second-hand but didn’t have any thoughts beyond that. While interviewing the girls, we discovered contradictions between their positive attitude and desire to buy second-hand, and their actual shopping patterns. This leads us on to which barriers they face, considering or actually buying second-hand.

Why do they choose to buy brand new clothes most of the time? When asking the girls what kept them from buying more second-hand, reasons as hygiene, trust and effort were mentioned. The girls had different views on the hygiene aspects; some could buy almost everything used, others would only consider buying certain types of clothes. Some did not care much about the hygiene, but one of the respondents said she did not like the thought of someone she did not know had been wearing the item. One girl mentioned that she preferred buying second-hand items cleaned by professionals. When talking about online second-hand buying - trust was also a big issue among several of them. The possibility of being scammed was something they considered buying from strangers. The third barrier mentioned was the effort second-hand purchases requires. One of the respondents found it difficult finding the right item and fit - “It’s just one of each item, so you can not find anything and choose a smaller size or bigger, because it’s just that one size available”. Another girl said, “I think it’s a lot of work because if I find some nice jeans, it may be too big and I will have to adjust the size”.

On the other hand, what motivated the girls for second-hand shopping?
All of the respondents agreed that saving money was an important motivational factor. Two of the girls only mentioned economy when asked about reasons why choosing second-hand shopping. One stated: “I do care about the environment, but in this case, I don’t think so much about it”. Three of them also mentioned the motivation of possibly finding unique items, and two of them also mentioned environmental aspect of buying second-hand. One girl said, “In the recent years, I have tried to be a bit more aware of going to second-hand stores rather than regular stores, because much better for the environment and reuse is a very good thing”.

**Selling second-hand**  After asking questions about buying second-hand, the interviews continued with questions regarding the girl’s thoughts about selling second-hand clothes. None of the respondents had experience selling or trying selling their own clothes; only one had experience selling something online as she had sold some horse equipment using Facebook groups. All, except for one them, were very positive about the idea of selling some of their own clothes. The girl who was less interested argued that it was not much to earn of selling her clothes as they had little value, so she preferred giving them to Fretex. After discussing a bit further, she seemed interested in selling dresses, but not anything other than that. Overall the girls expressed themselves as interested in selling clothes on online second-hand services. So why had none of them done it yet, and even not tried? From our discussions, it seemed like the effort was the main barrier. Their limited budget for buying clothes made them often choose fast fashion, and the cheapest alternatives. It seemed therefore that it would too much effort selling clothes of little value. One mentioned having downloaded the second-hand app tise, as her friends had sold some items there, but she did not manage to figure out how to use it and lost interest right away and claimed to be too lazy to get into the process of actually putting her clothes out for sale. When asking about their motivation for selling items, most of them had economic motives, and three of them also mentioned the environmental benefits of the clothes being reused by others.

**Summary**

The girls like to give away clothes, rather than throwing them away. They think of the environment but feel that they don’t do as much as they could have done, and at the same time, not putting in enough effort to make environmental choices.
Clothes not in use  Our impression was that all of the interviewees had a lot of clothes that were rarely or never used. Some of them occasionally gave away their unused clothes to friends and family, but they usually gave them away to charity. None of them threw away clothes in good condition.

Shopping  Social media is an important channel for fashion inspiration to the girls interviewed. They got inspired by both friends and celebrities. Some were actively seeking information about fashion and trends, and some mentioned being more occasionally inspired by seeing inspirational posts on Facebook and Instagram. Their shopping habits varied from one preferring online shopping and others preferred physical stores and getting to try the clothes on before purchasing. Although the girls preferred planning their purchases, they all admitted buying clothes on impulse, often for special occasions.

Second-hand  They were overall quite enthusiastic about purchasing clothes at online second-hand services, and they were motivated by economic and environmental reasons, as well as the “coolness” and the possibility of finding unique items that could make them stand out of the crowd. Even though they seemed eager to buy used clothes, only two of had actually bought second-hand items online, and it was not a habit, more a one-time thing. The gap between their stated intentions and lack of actually doing it could be explained by their factors of barriers such as hygiene and effort related to buying items from online second-hand services. They also mentioned that trust was an issue and that they needed to rely on people they do not know.

Personas
The background interviews resulted in lots of information about our chosen target group and typical characteristics of users we want to reach. We used our data to make fictional personas and task scenarios for use in the upcoming design process, to remind us of who our users are. Personas “don’t describe real people, but are realistic rather than idealized” [51]. The personas we created were not based on a single person’s characteristics but were inspired by the different characteristics of the girls we interviewed.

Marie - Opinion leader  Marie is 16 years old, attending the second year of upper secondary school and lives right outside of Oslo. She has her own personal blog where she writes about her everyday life, shopping
and makeup. She runs a popular Instagram account with 5000 followers where she almost daily posts pictures of herself. Among her interests are photography, dancing, shopping and travelling. She does not have a job besides school, but occasionally receives sponsored items such as clothes and makeup. She has a huge wardrobe with a lot of clothes never in use. When getting rid of clothes, she usually gives them away to friends, family or charity. She has considered selling some items, as she would like to earn some extra money.

Figure 5.4: Marie

Caroline - Diligent girl  

Caroline is 18 years old, attending the last year of upper secondary school. She still lives with her parents but has a part-time job as a tennis instructor. She also gets an allowance from her parents each month, making her in charge of her own purchases. She is interested in fashion but prefers using her savings for travelling. She has purchased some items from finn.no, a purse and a sweater as her mother showed her the ads and helped her buy them. She does not look for second-hand at finn.no herself, as she sees it as a service for her parent’s generation, not customised for young users. She does not care if an item is used, as long as it is in good condition and likes saving money buying second-hand.

Figure 5.5: Caroline
Linnea - Environmentally conscious  Linnea is 15 years old, just started her first year of upper secondary school, specialising in art. She cares about the environment and became a vegan after watching cowspiracy. She prefers shopping sustainable, quality clothes, but often ends up shopping at HM, as her only income is her monthly pocket money from her parents. She frequently visits Fretex with her friends and occasionally buys clothes there as well. Buying second-hand makes her feel good about herself, thinking it makes a difference not buying fast fashion. She would like to live a more sustainable life but thinks it hard to find sustainable alternatives in her everyday life. Among her friends at school, it is cool to buy second hand, and they like to stand out of the crowd and not wear the same clothes as the mainstream teenagers do.

Thea - Horse interested girl  Thea is 17 years old, attending the last year of upper secondary school in a small town and spends most of her leisure time with her horse. She does not have an income and is financially dependent on her parents. She gets 1000 NOK each month, spending most of it on horse equipment. Due to her limited economy, she prefers buying used equipment from finn.no and Facebook groups. She spends most of her time in the stable or out riding, and is not that interested in dressing up and rarely spend time shopping. She prefers online shopping, thinking it is the easy way of purchasing clothes. Her favourite store is Zara and Mango, but there are no such stores in her town. When attending special events or birthdays, she often borrows dresses and tops from her friends. She has the tise app installed on her iPhone, and has considered buying a couple of items, but have not done it yet.
5.2.2 Step 2: Specify user requirements and ideation

Ideation workshop 1

After getting to know our potential users and the context of use in step one, it was time for the ideation phase. We used the findings from existing literature on the field, our market research and data from our own user research to develop concepts aiming at our goal to support sustainable clothing consumption among young girls. We created mood boards and hand-drawn sketches to visualize our ideas.

The first round of ideation resulted in five main concepts, and seven concrete ideas. The ideas at this stage are described in the following section:

Concept 1: Second hand - first hand

Idea: Merge first-hand and second-hand, give the customer a choice.

Idea explained: Second-hand brought into system. A first-hand store that facilitates second-hand options for buyers and sellers. You can sell garment back after wearing it a few times. The shoppers can also look for cheaper and more sustainable options in the second-hand department. The service can be provided with an app, where sales are registered and stored. The money you get back depends on wear and tear.

Background: In the data we collected the girls told us that second-hand stores are mostly full of random clothes and sizes. You have to go on a treasure hunt to find something proper and that it can be tiresome if you are looking for something in particular. With a second-hand option in a store where you would look for the first-hand options, will make it easier to find the things you are looking for. The staff will also be familiar with brand, colour, etc.
Concept 2: Motivational service for supporting sustainable choices

Idea1: Motivation app for awareness of the clothing industry’s impact on our climate and how to extend the lifespan of clothes.

Idea explained  Reduce consumption of fashion, and inspire to a more sustainable consumption/slow fashion. The service could be providing guides on shopping sustainable clothing and second-hand, tips on how to make clothes last longer by taking care when washing, fixing damaged clothes and tips on how to remake them. The service should also educate on the importance of sustainable habits when it comes to clothing.

Background  In our background interviews, the girls talked about how they wanted to live a more sustainable lifestyle, but how it often was difficult to know which actual actions they could do to achieve this. They seemed open and willing to learn more about climate issues, as a girl for example mentioned being affected by watching a video of a dead whale full of plastics, and that seeing this had made her think more about us humans impact on nature. We also got inspired by the girls talking about wanting their clothes to be unique, and that sustainable style tips related to remaking of clothes could be a way to support them in giving new life to their clothes and at the same time giving them the possibility of creating unique items.

Idea2: An informative game aiming at creating awareness about clothing consumption and its impact on the environment

Idea explained  The idea is to make an app where the users learn about how their clothing consumption affects the environment. Through trivia games, challenges and competing with friends, the aim is to create awareness in a fun way, learning facts and numbers about consumption that they can relate to. We do not want to make them feel guilty, leading to apathy, but show how even small changes can make a difference.

Background  Interviewing the girls, we discovered that most of them weren’t aware of the actual impact our clothing consumption has on the environment. They were aware of over consumption affecting the environment in some way, but they had little knowledge about the actual consequences of our consumption habits. Even though some of the girls
argued that they considered the environmental impact when shopping, it
did not seem to affect most of the girls’ everyday consumption habits.

Concept 3: Second-hand event planner

Idea: Event planner for second-hand markets and private swap parties

Idea explained An app for finding and creating events for second-hand
swapping. The service would be for both planning public second-hand
markets, but also for private swap parties - making it easier to keep track
of the second-hand events arranged nearby.

Background The girls we interviewed mentioned that is could be difficult
to buy second-hand items online, considering size and fit of the clothes.
Some of them preferred visiting physical second-hand stores. The goal of
this concept is to make it easier to arrange swap parties with friends and
also bigger public events. It will also help girls in our target group keep
track of second-hand markets in their neighbourhood. The past year, it has
been arranged a lot of second-hand markets in Oslo. Both as public open
yard sales by private sellers, and on a more professional level - for example
second-hand markets by fashion bloggers at MESH (a coworking space
in central Oslo) and big public swap parties at MESH and the bar/cafè
Kulturhuset in Oslo. The goal of the service would be to gather information
about the events, and also make it easier arranging events and reach out to
the people interested in these events.

Concept 4: Service to support second-hand sales and swapping in private
groups

Idea: Sharing in groups/network - items for sale and lending

Idea explained The goal of the service is supporting sharing of clothes in
existing networks, making it easier and more fun to give away, sell, lend,
buy and get free clothes from people the users already know. The users
can join existing groups created by others (such as close a group of friends,
classmates, family, sports team etc.), or create new groups of their own. The
users can post items they no longer use or rarely use, and mark it as for
sale, for free and/or for lending. The user profile will contain the person’s
wardrobe of available clothes. A feed (as in Instagram) will be showing
the items available in your network (from members of your groups), and
provides the opportunity to request the item or send a message to its owner.
The service would also have a feature that reminds you to return borrowed items, and also a way of reclaiming items loaned out.

**Background**  Most of us, including our respondents have a lot of clothes never in use, because of size, fit and change of style. Interviewing the girls from our target group, we discovered that they occasionally borrowed clothes from friends. When getting rid of unused items, some of them often considered giving them to friends. None of them had arranged swap parties, but swapped occasionally when visiting each other’s house. The goal of this concept is to provide a tool for exchange of clothes within existing networks - extending the lifespan of the clothes they own.

Two of the girls told us that many friends from school used the Tise app, and they often bought items from other girls from the same school. They said it was easier buying from others attending the same school as it was easier to trust people from their own network. They also mentioned that they considered it as easier handing over the clothes at school as they could just meet between classes. Effort and trust were mentioned as barriers that kept them from using online second-hand services. By letting the users choose their audience of their posted items, and let them see posts from people they already know or at least know of, could possibly lower the barriers as it supports trust among the users. It could also save effort as they could hand over the items when they meet at school, training or in their neighbourhood. As the girls wanted to share their clothes with their friends, it is a possibility of the girls posting more items as they know it would only be available for people they would like to share with. During the interviews, we discovered that they had a lot of clothes the rarely used, but would not throw away as it might come in use someday. This service would support circulation of these items, and possibly preventing some new purchases as they could find equivalent items for free, for lending or cheaper in their existing network.

**Idea2:** Second-hand service, inspired by Tinder navigation

**Idea explained**  The goal of this service is to make it more efficient to look for items. It can use picture recognition and a customised filter with size, type of garment. The service shows you what you may like. The interaction for choosing what you like and what you don’t like is by swiping left or right. The goal of using this interaction type, is to make the process more fun, by explicitly "throwing away" or "keep" items. We want to
make the user feel like their browsing through a catalogue and gives you the opportunity to choose. It will also contain a feature for posting sales, profile, messages, connection to Instagram account etc.

**Background**  It was mentioned by some of the interview participants that the most annoying thing about going to physical second-hand stores was that there is most often only one size of the garment you want to buy. It was mentioned several times, that they got tired of the second-hand service apps they had tried before. Some of them didn’t even remember the names of the apps because they were so similar. Another reason that brought us on this idea was that it was too messy to browse around, there was too much choice, and it was easy to miss out on something nice. We interpreted that the original grid-browsing were also perceived as a bit cumbersome, when you search for something, you get 150 hits on that object, and they all look the same. If don’t search for something, you have to look through a lot of clothes that are in the wrong size or something you don’t want to see.

**Concept 5: 3rd party - leasing service**

**Idea:**  Third party leasing service

**Idea explained**  A mobile app service where you can plan what to wear every day (calendar plug-in) and it can also help you match certain clothes with the accessories. It provides a leasing service for occasional dresses for special events, such as a birthday party, wedding, night out, graduation or job interview etc. And it’s delivered to you at home. Possible features can be that you can send a picture of an outfit to a friend, and they can review it. It can save (pin) “outfits”, so you can easily pick them again next week. Basically, it’s a planning, fashion helper and a delivery service.

**Background**  Background: It can be tiresome to find something to wear every morning, the planner helps you pick out what you want to wear each day for a whole week or even more than that. It makes us more aware of what we own, what we need and how often it is used. Some of the girls we interviewed bought a lot of clothes online rather than physical stores. Most of the girls checked second-hand stores online to search for expensive items, or something they can not afford to a full price. This gives them the opportunity to rent it, when they need it. Expensive bags, accessory, dresses. It also deals with hygiene perspective that was brought up during
the interviews. The desired outcome of this service or the “ideal world” is that no one buys clothes, they rent it for a fixed price per month. One outfit is then passed over to another girl the next week. Then the clothes are in use all the time, and no leftovers or too much clothes in the wardrobes. The 3rd party leasing service is responsible for cleaning and maintenance.

- Planned business model for this service: subscription (monthly, year, pr. lending)
- Transaction: Home delivery or/and pick up points.

Evaluating ideas

After several rounds of discussion with our supervisor and among ourselves, we started to map out which of these ideas was the most feasible for this master thesis project, emphasising on the quality of the ideas, the interpretation of the user’s needs, time frame of this master project and completion capability.

The reason for not including the users in this phase was because it would have been too comprehensive to sketch out all of the concepts and ideas and then evaluate all of them.

So we decided to proceed with three of the ideas, sketch out our thoughts and then proceed to evaluation with users.

SwapApp based on concept 4, idea 1 We chose to proceed with this idea, because of the users already established "sharing" routines, and that they like to borrow, share and sell clothes to people that they already know. So they don’t have to communicate with strangers, they can ask to borrow a garment or they can safely buy clothes without worrying about the hygiene issue.

Hippi based on concept 4, idea 2 We chose to proceed with this idea, because of the interpreted hassle with browsing items and try to explore this idea of making it more fun and convenient than the other apps that are on the market. Also trying to target this app more towards our target group.

Earthling based on concept 2, idea 2 We chose to proceed with this idea, based on the lack of awareness around clothing consumption, by trying to motivate this target group by playing a casual game.
All of the chosen ideas are elaborated on in the next section.

**Why we discarded the other ideas**  We saw the ideas such as second-hand first-hand as too difficult to evaluate in such a small time frame, and it’s harder to capture the context of actually going into a store. The same goes for the 3rd party leasing service. The second-hand event planner we saw was too similar to Facebook events and groups, so the functionality is already easily available in their lives, since all of them already are heavily users of Facebook. The first motivating service described as idea 1 in the concept 2 section, was too similar to a blog or a website filled with information. It didn’t provide any interactivity between users.

All of the chosen ideas are elaborated on in the next section.

### 5.2.3 Step 3: Produce design solutions to meet user requirements

In the third step of the first iteration, we started producing sketches and low-fidelity prototypes. We started out sketching using pen and paper for visualising our ideas.

After several rounds of sketching and discussions, we had a more clear idea of what our services should look like and which features they should contain. This resulted in the three proposed ideas described below. We also turned the conceptualised ideas into low-fidelity prototypes using the design software Sketch.

### 5.2.4 Concept 1: SwapApp

An app for supporting sharing of clothes in existing networks. The girls in our target group often have a lot of clothes rarely or never in use. Our goal is to utilise the amount of clothes just filling up the girls’ wardrobe, extending the lifespan of each item by supporting girls in swapping clothes with other girls in their network.

**Functionality**

**Compromises:** This low fidelity prototype is horizontal - providing a wide range of functions but with little detail [51]

**Profile**
• Every user has an own personal profile containing profile picture, a short written presentation of the user, location, followers and users they follow

• The user’s profile contains their wardrobe of posted items, items lent and items lent out.

• The users can remind other users to return lent items

Groups

• The users can create new groups. It could be groups of friends, sports teams, classmates etc.

• Users can join existing groups

• Users can invite friends to existing groups

Feed

• Every user has a personalised feed with posts by other users in their network, showing the items available for them

Search

• Users can search for items by keywords

• Users can filter content on category, price and distance

• Users can choose to only show items for lending, for free, and/or for sale

Create a new post

• Users can create new posts by taking a photo of an item, mark it as for sale, for free and/or for lending

• Users can write a short description of the item

• Users can fill out information about size, category and possibly price if it the item is for sale
Figure 5.8: SwapApp low fidelity prototype
Design proposal: Low fidelity prototype

5.2.5 Concept 2: Hippi

A redistribution service for clothing, where you can search for used clothes in a new way. The value of this service is that you can browse and look at clothes in a different way, than what the rest of the services on the market offers. The interaction type is to swipe to the right, if you like the item or swipe to the left if you don’t like it. The app will learn what you like and what you do not like, by using image recognition already provided in apps such as Snapsale (ref) and letgo (ref) already.

Functionality

Compromises: This prototype is designed vertically - providing a lot of detail for only a few functions [51]

Browsing items

- Users can swipe through sales
- Click on them to see the items in detail
- Send message to seller
- See where the sale is

Filter options

- Choose what type of garments to show
- Choose size
- Choose geographical radius

Menu

- Access to profile
- Access to search settings
- Access to browse
- Access to my treasure - the sales you have swiped to the right (liked)
- Access to messages
- Access to general settings
We chose to not include "post sales" since we wanted to test the value of the new browsing technique "swiping".

5.2.6 Concept 3: Earthling

An environmentally themed game, based on reversed psychology principles. The idea was to include different casual games [8] with different subjects in regards of the clothing industry, air pollution, food industry among other themes. Where the goal is to ruin or waste as much as possible, to see how that effects the environment. We prototyped one game that we named "Fly Away" and the goal was to tap the right destinations on the map, and fly from place to place. We explored a bit on how we should show case the data afterwards, as you can see in (fig 5.6 - Result screen)

Functionality

Compromises: This prototype is designed vertically - providing a lot of detail for only a few functions [51]

Casual game

- Information screen
- Count down screens
- In-game screens with a progression bar and task
- Result screen

Game path

- A game path with access to different level, the next level is unlocked after finishing the previous

The idea was to include some social mechanisms such as "Compare yourself among your friends" and some personal overall data such as for example "Your emissions are so high, see how this will impact the earth".

Summary of the concept presentation

These are the concepts we are evaluating in the next step: Evaluation. All of the concepts above were prototyped in Marvel[38] to get a sense of interactivity, and that the test participants were able to operate it to some extent.
Figure 5.9: Hippi low fidelity prototype
Figure 5.10: Earthling low fidelity prototype

Welcome screen
Game path
Game introduction screen
In-game
One task completed
Result screen
5.2.7 Step 4: Evaluation

The fourth step of the project’s design process is evaluation, in this section we present the description on how we conducted the evaluation.

Formative testing: Exploring different concepts

Our first evaluation was conducted after completing low-fidelity prototypes. These prototypes contain different concepts (presented above), and our goal for this exploratory formative testing was to investigate which of the three concepts to proceed with, and to ask our participants to share their meanings, what they think of the different concepts, and which concept they find most engaging. Since our three concepts are quite different and divergent, the evaluation form is more exploratory, with an increased emphasis on the communicative form between the tester and the participants, rather than a usability test or deciding minor design choices. We conducted a usability test after having enough evaluation data to decide which concept to go for (iteration 2). In this sense is more like a holistic formative testing with the emphasis on the value proposition of the three concepts. Testing design concepts in an early stage are often more exploratory, and consists of low-fidelity / paper prototypes with a more communicative form between the testers and the participants. Is more on how the concepts are perceived rather than how fast the participants complete a task. It’s important for us that we don’t have a favourable concept when asking the participants to share their meaning and thoughts. The benefit of a formative test is that the design concepts are in an early phase and it’s easier to criticise and give an honest opinion. With a fully functional prototype the participants can be more hesitant to criticise.

As we discussed above, the first evaluation is formative and based on concepts testing. We chose the method focus group and individual questionnaire for gathering data, in a concept testing format. The reason for choosing this type of evaluation was because we wanted to observe our target group having a discussion with people in their same age group, to see if they act differently when they are not presented with a lot of questions, one-to-one with a researcher. Also, we thought it was fruitful to see if their ideas, creativity and opinions unfold differently when they’re not “forced” to answer nor alone in a room with the researcher. But again, it could have also unfolded in the complete opposite direction, setting the participants in a situation where they feel like they are forced to answer in front of their friends and come up with something that is smart rather than
stupid. Such things need to be considered and taken into account when conducting this evaluation.

**Our plan of execution:**

1. Presentation of this thesis theme, research and our goal. Handing out informed consent, informing the participants of their rights as research subjects.

2. Presentation of the concepts.

3. Participants answers a questionnaire regarding the different concepts (Qualitative and quantitative).

4. Focus group format discussing each concept, ideas, what can be done differently.

**Presentation of the thesis theme and our research goal** We'll present the theme of today’s subject, why we want to know and what we will use it for. This is a good opportunity to tell the participants about its rights as a participant in a research project and give them the informed consent.

**Concept presentation** We explain each concept and we will show the participants the low fidelity prototypes. Before we start, we will hand out the questionnaires, so they can read through before they start filling it out and start thinking about each concept.

**Participants answers the questionnaire** They fill out the questionnaires individually, writes down some thoughts and opinions regarding each prototype. We wanted to do this before we start talking freely about all the concepts, so they don’t get influenced by each other’s opinions.

**Focus group discussion** Semi-structured discussion, we’ll ask some questions regarding the prototype and other things regarding their daily life. This is the forum for discussing the different solutions, what can be done different and how they envisage each concept place in their daily lives, what is their motivation, similar and different services connected to this topic.
The evaluation

We agreed to conduct the evaluation with a group of five girls, they were supposed to come, but things changed the day before the evaluation day. Three of the girls could not make it, so we had to carry out with only two of them. These things happened, and we had to adapt to the sudden changes. The focus group session was held at a meeting room the Department of Informatics, UiO. As they arrived at lunchtime, we started out eating lunch together while getting to know the girls. After lunch, we proceeded to our planned focus group.

Our evaluation plan and how it was conducted:

1. Warm up - We explained what this study is about, what we needed their opinions, and that we needed their honest opinion. We also went through the informed consent in plenary, to alleviate what it contains and inform them about their rights. Then we went through the plan of the next two hours, to give them a perception of what we were doing for the next couple of hours.

2. Presentation of the three concepts, after presenting each concept the girls had to answer a questionnaire individually, of what their initial thoughts were, what they thought about it etc. We chose to do it individually in the beginning so they would not affect each other’s opinions. After being presented with all three concepts, they had to answer a short questionnaire about which concept they liked the most and why. We tried to formulate these question with the first
interviews in mind, when the girls said that the apps on their phone had a hard competition with their storage space.

3. Third part of the evaluation we discussed different themes. First we started with the concepts and after a while we went further out in discussing the girl’s awareness around certain questions in life, such as School, clothes, identity, and after that we switched the conversation topic towards climate questions etc.

**Independent questionnaire summary**

The following summary is summarised in the same order as it was presented, remember that each questionnaire was answered after each individual presentation of the concepts. And that the first summary contains a synopsis of the answers they gave before they spoke out loud.

**SwapApp**  Their first reaction was that it seemed much easier to find clothes and that it was a smart concept. They liked the idea of swapping things, and not just sell clothes. One of the participants said that it would be useful to have this app a couple of days before a special occasion such as a birthday party, wedding or something similar, where you almost always needs to buy new clothes. One of the participants stated that this app’s uniqueness is that you can lend out clothes to others, and make your own groups. One of the participants wanted a functionality to go back and look at things you have been looking at before. All of the participants thought that this is an app they would have used.

**Hippi**  Their first reaction was “Smart way to set up a service! It’s simple and fun to find clothes” “Very clever! I can use it everywhere, I can just swipe, I don’t need to search for specific items”. They thought it was a cool idea that you don’t have to search and know what you want before you start looking. They envisioned this service as something they could use whenever it’s appropriate, the bus, at School, and one of them wrote that “I think I even would have used it with friends”. They thought that this service is more adapted for youth, and their own age group.

**Earthling**  The reactions towards this prototype were that “this is a fun way to learn about things”, and that it’s different than reading a fact book. You don’t have to search for information on the internet regarding things that are climate threatening “you can just play and learn at the same time”.
One of the participants thought that this game could give you a different perspective of things. One of them stated that it would be nice if you could pick different topics for example, airplane emission, clothing emission, etc. While the other wrote that it would be interesting to see how much plastic there is in the ocean, and get more information about how much it harms fish and other sea animals.

After answering a sheet with questions regarding each individual concept, we gave them the last question sheet where they answered questions regarding all of the prototypes.

**All the concepts** We decided to phrase the questions targeting what we had discovered in our data collection phase, services and apps they use on their phone are often decided by two things, the first is that it is cool and that they are hooked, the second is how much space they have on their phones. When they get tired of an app, they delete it to release more space. So we asked the question “If you only had space for one app on your phone, which of these would you keep?” In addition, we asked “If you had all three of the apps on your phone, which one would you have used the most? Which of these concepts appealed most to you and why?” and at the end, we asked them to rate the concepts from first to third place.

All of the participants answered that Hippi was the app they would have kept if they only had space for one of the services on their phone. If they had all three apps on their phone, they would have used Hippi the most, the reasons were “because of the tinder navigation, it makes it so much easier to find clothes”, “It appealed to me, because it saves what I like”, “it’s so easy and a cool way to search for clothes”, “I think I would use the buy and sell app (Hippi) the most, because it fits best for me regarding my interests and time”.

**Discussion**

After the concept evaluation, we had a discussion with the girls. Bringing up discussion themes such as the use of second-hand services, buying second-hand, frequently used apps, and what they regarded as cool.

As we had seen in the interviews, it occurs that some of them are familiar with something they saw in social media or on the television, and that this stick to their mind a couple of month. When we conducted the interviews, some of the girls were eager to share some of their thoughts around textile fabrics in Asian developing countries, and this because of the Norwegian TV-series sweat shop. Now our participant’s attention seemed
to be drawn towards a new article about the whale they found with huge masses of plastic inside its stomach [23] on the Norwegian coastline.

**Conclusion after the focus group session:** After our 2 hours session and an overview over the data we collected, we decided to move on with concept number 2: Hippi. Based on the feedback from the evaluation. Hippi was preferred by everyone involved, and they expressed that this concept was better suited for them as users than SwapApp and Earthling.

### 5.3 Iteration 2

On our second iteration started with redesign of Hippi; improving the design, adding new features and making it a more high-fidelity, interactive prototype. We used the design tool Marvel to apply interactions.

#### 5.3.1 Redesign after evaluation

**Swipe**

**Post a sale**

**Others profile, your profile, menu and messages**

#### 5.3.2 Heuristic evaluation with experts

After improving the prototype, it was time for a new evaluation. We chose to conduct a heuristic evaluation to discover issues related to usability. When we were about to approach the end of this project, it was necessary to discover as many usability problems as possible. Jakob Nielsen believes that 75 percent of the usability problems are discovered after conducting a heuristic evaluation with 5 users [27], see figure 5.15.

**Participants - The experts**

- Woman 25 years old - Interaction Designer
- Man 28 years old - Software developer
- Woman 28 years old - Works with marketing
- Man 28 years old - App-developer for a redistribution service
- Man 26 years old - Computer science student
Figure 5.12: Hippi v2 visualisation of the swipe interaction
Figure 5.13: Hippi v2 Post a sale

Step 1: Choose photo
Step 1.1: Added a photo
Step 2: Description
Step 2.1: Added description
Step 3: Add price
Robot analysing

Step 4: Add picture and edit
Step 3: Final look before posting
Figure 5.14: Hippiv2 - Others profile, your profile, menu and messages

Another person's profile

How you see your profile

Menu options

Messages overview

Message
All of the participants had different expertise and backgrounds. They were domain experts within their field, and one of the participants was a domain expert within redistribution services.

**Execution**

- Location: Remotely - No specific location; at a cafe, at the university, and at one of the researcher’s apartment.
- Time frame: 20 - 30 min
- Equipment: Interactive prototype on an iPhone, booklet with heuristics and answer sheets
- No sound recording

We divided the testing sessions between us researchers, as we would not be too familiar with the usability problems that already had been found. Being aware of previous feedback could have caused some bias during the next session, telling the participants that we are aware of certain things that already had been detected by other participants.

We used an evaluation form, including issue description, location within the service, level of importance and recommendations.

We started each evaluation session with an introduction explaining the purpose of the evaluation and also the concept of heuristic evaluation as a method, as some were less familiar with the concept than others. Further,
we described the plan for the session, explaining each heuristic, the tasks to be completed and how to fill out the form given to them.

**The Heuristics**

These are the heuristics we chose to include in our evaluation, retrieved from Jakob Nielsen’s 10 Heuristics for User Interface Design:

**Match between system and the real world**  "The system should speak the users’ language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order". [26]

**User control and freedom**  "Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo." [26]

**Aesthetics and minimalist design**  "Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility." [26]

**Flexibility and efficiency of use**  "Accelerators — unseen by the novice user — may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions." [26]

**Rating categories based on importance**

The users performing the evaluation were asked to rate the issues using the categories low, medium, high and critical.

**Findings**

The evaluation resulted in a great amount of feedback. The feedback included issues on different levels; critical, high, medium and low. Some of the findings are described below:

- Critical issues addressed:

- Onboarding - need for an introduction to the service
High-level issued addressed:

- Post sale summary - the buttons for creating new tags is confusing
- Profile view - Unclear if personal note is the same as description
- Swipe - Need explanation of what happens when clicking like or dislike
- Swipe - How can I get more information about the item?
- Swipe - Need information about the price of the items
- Swipe - Could it be possible to display a scroll view in addition to swipe?
- Swipe - Lack of overview, how many items are available for me?
- Swipe - What type of items are included in my swipe view?
- Swipe - Display more items? I want to see more clothes at one screen
- Search settings - Should be accessed easier, without navigation through the main menu - perhaps filter setting in swipe view?

Medium-level issued addressed:

- Swipe - Lack of user control: I don’t feel free having to go through every item displayed
- Menu - It is difficult to close the menu
- My treasures - There are different terms describing my saved items - In swipe mode it’s just presented as a heart, it’s called "my treasures" in the menu, on the top of the screen for my treasures it’s just "<3" and at my profile it’s called "my loved ones" - confusing!
- New sale - What are the robots looking for? Need for description
- New sale - What did the robots find? Could be explained
- New sale - How many steps required to post a sale, the steps could be visualised with dots or numbers indication total amount of steps and current step
- New sale - Should not have the option to go back to the previous screen while the "robot" is scanning the photo, I would prefer replacing the arrow with an X
Low-level issues addressed:

- Menu - "My treasures" is a weird expression - It’s not treasures, it’s clothing
- New sale - after posting an item, I return to my own profile. I would prefer returning to the swipe screen
- My impact - I would prefer use of a recycle icon

5.4 Iteration 3

After finishing up the heuristic evaluation in iteration 2, we redesigned the service based on feedback from our experts.

5.4.1 Final prototype

Here are our final design sketches for Hippi, we will elaborate on each screens functionality below

The swipe interaction  5.16 This is our main functionality, letting the user swipe to the left or right depending on the user’s preferences regarding the item showed. The button between the ‘x’ and the heart is activating the grid view showed in the top right corner in 5.18

Detailed view of item  5.17 When tapping the picture when you are in swiping mode, leads to this state. You can see several pictures of the item, the last pictures show a map, visualising where the item is approximately located. The big red button is for starting a conversation with the seller.

Menu choices and search grid  5.18 Top left corner: The hamburger menu, with access to all top level functionality in the app. ‘Add new sale’ and ‘start swiping’ is highlighted with bigger buttons. Bottom left corner: This is where all the sales you like ends up. Bottom right corner: Search setting, this is where you set your preferences for the swipe-search.

My profile  5.19 This is how the user’s profile are shown to them, the first picture shows an overview of all sales, the second screen called ‘my impact’ shows how much you have saved in terms of environmental measurements. The ‘grid’ view is showed under the section of others profile, it looks the same.
Others profile  5.20 This is how others profile are shown to you, you can choose between grid mode or 'big picture' mode. The 'impact' functionality are shown under my profile, it looks the same for all, if you haven’t set the toggle button to ‘private.

Figure 5.16: "The swipe interaction"
Figure 5.17: "See detailed view of item"
Figure 5.18: "Menu choices and search grid"
Figure 5.19: "My profile"
Figure 5.20: "Others profile"
5.4.2 Customer Journey Mapping - Visualising the context of use

To get a feeling of the service as a whole, we made several customer journey maps. Addressing different aspects that we thought was important, we included: phase, touchpoints, actions, channels, thoughts and emotions. This is one of our customer journeys, it’s important to take all likely events into count when making a customer journey, the other scenarios that were mapped can be seen in the appendix E. The scenario we have mapped out below is based on the persona Caroline, described in section 5.2.1.
## Customer Journey Map

### Phase

<table>
<thead>
<tr>
<th>Before</th>
<th>During use</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Touch points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoughts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Phase**

- **Before**
  - Smart phone app (used by friends)
  - Downloads the app
  - Starts swiping
  - Sends a message
  - Receives a message
  - Transaction
  - Home

**Actions**

- Ask about the name of the app
- Takes the mobile up from her bag
- Getting to know Hippi
- Finds a nice dress, tries to contact the seller
- Get's in touch with the seller, plans where to meet
- Checking the condition of the dress. "Vripser" money to the seller.
- Trying the dress on

**Channels**

- Word on the street
- App store
- In-app
- In-app
- In-app
- Face to face

**Thoughts**

- "This must be cool"
- "ohh, need to wait for the app to download."
- "wow, this is something new"
- "Nice dress, I want to buy it. Hope this person answers"
- "Yes, she answered"
- "Scary to meet someone I don't know"
- "I've got a new dress for the upcoming summer party!"

**Emotions**

- 🎉
- 😊
- 😊
- 😏
- 😏
- 😞
Chapter 6

Discussion

In this following section, we will discuss how we used the theoretical framework of Intentional design for innovation in our design process. Further, we will elaborate on our findings from existing literature on sustainable consumption, the barriers of sustainable consumer behaviour and how to lower these barriers and to support the use of online second-hand services.

We will start out repeating our research question for this thesis:

*Designing to support a more sustainable consumption - Can improvement of user experience in services for redistribution of clothing, support and motivate to a more sustainable consumption among adolescent girls?*

With the sub-questions:

- What can we learn from existing literature on barriers to sustainable consumption?
- To what extent are motivational theory relevant when designing to support sustainable consumption habits?
- To what extent can cool theory help us designing a service

6.1 Reducing the barriers and motivate adolescent girls in choosing sustainable options of consumption

Our literature review presented barriers of sustainable clothing consumption. External barriers mentioned was limited availability both considering limited access to second-hand sources, but also the limited selection
of items with desired attributes. Another external barrier was the social expectations of appearance which may not correspond to peoples perception of second-hand styles. The internal barriers mentioned were lack of knowledge and negative attitudes about sustainable options. The knowledge barriers were related to the lack of knowledge about the relationship between environmental issues and clothing consumption and also people not knowing where to acquire sustainable second-hand items.

The barriers presented in the literature review corresponds fairly with our findings from our user research. Barriers that was brought up during our interviews were limited access to items with desired attributes and the extra effort required when shopping second-hand. The young girls we interviewed seemed not to have an issue with second-hands items apparel in general, on the contrary - they were found of the uniqueness of second-hand clothing. They were also quite aware of where to acquire second-hand, as they all knew of several physical second-hand stores and online redistribution services. As of knowledge of the relationship between environmental issues and clothing consumption, they seemed to be little informed about the actual consequences of their own clothing consumption habits. Some of the girls were somewhat conscious of their consumption habits affecting the environment, as others who claimed to be concerned about the environment in general, did not consider the environmental issues when purchasing clothing. Another barrier that was frequently mentioned during our interviews, was trust issues related to second-hand trade.

As a result of our user research combined with findings from existing literature on barriers to sustainable clothing consumption, we gained knowledge of the barriers keeping the girls from choosing online redistribution services on a more regular basis. We used this information when creating concepts and making our designs, and we decided to focus on enlightenment about the relationship between clothing consumption habits and environmental issues, reducing the effort of second-hand shopping, supporting the girls in finding the right items and also reducing concerns regarding trust.

In addition to knowing our user’s barriers, we also focused on the motivational factors of choosing online second-hand services. As mentioned in the literature review, Hamari, Sjöklint and Ukkonen proposed four categories for participation in collaborative consumption; sustainability, enjoyment, reputation and economic benefits [29]. In our user research on motivational factors for using online second-hand services economy, sustainability and uniqueness stood out as important categories.
Sustainability and enjoyment are regarded as intrinsically motivated use by Hamari et al. [29], reputation and economic benefit is regarded as extrinsically motivated use. We can see similarities between these categories and what we found when we spoke to the target group. Different types of behaviours stated different types of motivations, both in terms of fashion and use of second-hand services.

On the one hand, we have the people that want to use it in terms of finding nice, unique clothes, something that makes them different from others, the joy of finding unique clothes that you can’t find anywhere else. And on the other hand for gaining economic benefits or for the sake of their reputation among their friends and school mates.

In the lens of Self-determination theory [14], we know that there are three fundamental psychological needs that have to be present to achieve intrinsic motivation, we don’t think that we can design an intrinsically motivational service, but these factors can help us to address how thoughts and beliefs that can assumingly unfold internally for a person in our target group. The same goes for our chosen theoretical framework that addresses the fundamental feeling of joy, and how to design for it.

How we addressed important motivational factors in the design for second-hand services, based on the fundamental psychological needs; competence, relatedness and autonomy

- Mastery, the feeling of mastering something -addresses the feeling of competence
- Completion, when you complete something and get done with it -addresses the feeling of competence
- Joy, when you are having fun with friends - addresses the feeling of autonomy and relatedness
- Social, when you are hanging out with friends in real life or online - addresses the feeling of relatedness
- Self-rule, "I’m using my time on this because I want to" - addresses the feeling of autonomy

These are examples of how we used Self-determination theory while designing.
6.1.1 Development of concepts and design based on knowledge of barriers and motivational factors of using online redistribution services for second-hand

After learning about the barriers of using online second-hand services, and what motivates our user group in choosing sustainable alternatives of clothing consumption, we created concepts and designs based on these barriers and motivational factors.

Reducing effort was highly prioritised both in creating concepts and design. From the user research, our impression was that effort was a major issue keeping them from both buying and selling clothing using online second-hand services. We had this in mind when creating the first concept ideas. An example of reducing effort is the second-hand event planner, where we wanted to support them in planning and attending second-hand events and swap parties. As the girls found it difficult to buy items online considering size and fit, and also the planning involved when handing over the items - we wanted to support meet-ups for swap and sale. Attending private or public events provides the opportunity to sell or give away a greater amount of clothes at once, and they get to try the items on before acquiring them. Another example is the concept of supporting second-hand sales and swapping in private networks. Sharing in existing networks of friends or acquaintances may reduce some effort as they share social areas, and can easily meet up and they may also be familiar with each other’s size. This idea also supports trust between the users of the community.

Lack of knowledge of the relationship between clothing consumption and its actual effect on the environment was a barrier we focused on reducing making our concepts. This was the main focus of concept 2, a motivational service for supporting sustainable choices. This concept resulted in two different ideas with different approaches to reducing this barrier. The first idea was a motivational app aimed at creating awareness of the clothing industry’s impact on the environment, by providing guides on sustainable clothing consumption, tips on how to expand the life span of clothes and educate the users on the environmental impact of the user’s individual consumption habits. The other idea within this concept of sustainable education and inspiration was an informative game for creating awareness of the clothing consumption and how it affects the environment.

In the development of our main service; Hippi, we wanted to integrate an educational feature in the app, as we wanted to create awareness about environmental issues caused by clothing consumption. When working on
how to communicate the climate message we used strategies from climate psychology. One of the strategies presented by Stoknes was using the power of social networks and using them to strengthen eco-friendly norms. We decided to make a profile extension called "My impact" (figure 6.1), providing an overview of statistics for items sold and purchased through the app, and also the environmental impact of circulation these items versus buying new ones. This information is by default made public for other users of the service, but can be made private. The overview also compares the user’s second-hand consumption habits with other users so they know if they are more or less frequent users than others nearby. The idea behind this feature is to support sustainable norms among the users of the community, as they may be influenced by knowing of their friends or local community sustainable consumption habits. As the experiment on the motivation of saving power conducted by Cialdini shows (described in section 2.1.3), social norms are more a more effective motivational factor than sustainability, future generations and economy. Seen through the lens of Self-determination theory this correlates with psychological needs relatedness and competence. You can achieve the sense of competence in relation to be better than your friends, and psychological need of relatedness in terms of the feeling that you belong in a group, and that you have a shared goal in that group.

Another strategy of climate communication proposed by Stoknes is making climate-friendly behaviours easy and convenient, and the importance of presenting the sustainable alternative in a good way. This was highly focused on developing all our concepts, including the service Hippi. The concept is about making redistribution of clothes easy, fun and convenient. This is elaborated in the section below; Designing for joy.

**The importance of feeling unique**

Two of the girls we interviewed, claimed to prefer buying second-hand, as it made them feel more unique rather than buying the same items from H&M as everyone else at school. Our impression was that the majority of the girls from our user research were concerned about expressing their uniqueness by having a unique, personal style. One of the girls from our background interviews, expressed that it was really important for her to be unique when it came to clothing style and look, she expressed that she was really aware of “what’s hot and what’s not” when it came to fashion and trends, and that it was important for her to not follow these trends but rather have her own style. Early in the interview she mentioned a piece of
Sold 30 items
Bought 10 items

You have saved

10 kg Chemicals
4h Airplane
2000 L of water

56% better than users in Oslo

Figure 6.1: My impact
clothing that “everyone uses” these days, and said that she did not use this piece of clothing, because it’s too mainstream. At the end of the interview she said that this specific piece of clothing was occasionally used by herself at School. We believe that latter finding has a connection to their age group and importance of feeling independent and unique. This will be elaborated further in the upcoming section; Designing for joy.

The interesting thing here is that this phenomenon is also portrayed in a documentary series that was on the Norwegian channel TV Norge [30], where there is an adult named Christine Koht that interviews girls in GEN Z about their clothing style. The clip that is referred to, shows two girls that are apparently wearing the same sweaters with tiny differences, and they discuss how different and unique one of the girl’s sweater is.

The girls subjective thoughts may seem to be that their style is unique, and if you actually dress differently, like one of the participants described “there is one person at my School that only wears hemp clothes” when you cross a line, you are seen as different, but not in the same way as they describe themselves.

6.2 Designing for Joy - What makes things cool

By the 1960s cool for mainstream teen culture came to be linked to a posture of detachment from adult culture in general. - Moore [41]

“Joy is the most basic human emotion” - Don Norman [44]

What makes thing cool? We took an interest in this topic because we wanted to design for a better user experience of redistribution of clothing. We found out that motivation could be wrapped in "cool", instead of a morally pointing finger saying what you should do, or what you should not do, in order to do things right. In the absolute center of cool, we find joy [22]

6.2.1 Joy in life

The following section we discuss the 5 key motivations that a product must satisfy to be considered as "joyful" [22] we will discuss this in relation to our research project emphasising on our final prototype "Hippi", but also in regards to our discoveries in our data collection phase and evaluations with our target group and feedback from experts.
Accomplishment:

The first factor that Holtzblatt addresses in "joy in life" is accomplishment [22], the joy in accomplishment is our primary motive to keep going, complete something and move along. And the cool of accomplishment is that it changes our focus from task to life. These activities can be core activities, that we want to get done with fast or moments in life when we want to take a mental break such as waiting for a friend, waiting for something to finish, etc. So how can this product be placed into our time slots of our everyday life?

In our interviews, we found out that buying clothes was a hassle for some and an act of pure enjoyment for others, almost like a hobby. For the interview participants who saw the act of buying clothes as a hassle, restored frequently to buying things online at online clothing stores such as for example Zalando. The hassle that clothing stores online introduces is that you don’t know how it fits when it arrives in the mail box, and it often results in sending things back. When we asked about why they preferred shopping online, one said that the stores are always crowded when you go there mid-day on Saturdays, and it is exhausting. "I don’t want to waste my time looking for a particular outfit when I hang out with my friends."

The others that saw the act of going into stores looking for something and then stumbling upon something nice while looking, as an act for enjoyment.

There was also something else really interesting that we discovered during the interviews, the use of the most popular second-hand service in Norway, Finn.no, was considered as a "mom and dad"-website. It was actually mentioned several times in different interviews. It seemed to be common sense among out target group. It’s a service that they don’t like to use because of the latter statement. The other thing that bothered them with second-hand services was that it requires looking for something particular in a way. It does not facilitate the behaviour of just looking for something nice.

In Hippi we considered the following: When we first started to prototype Hippi, we addressed the need for "not looking for something in particular" giving the user random offers, like going on a treasure hunt, making the interaction seem more playful.

We implemented a feature that gives the user the opportunity to filter on specific clothes, not only brands and give them the opportunity to dis-
cover things in proximity. It is about ease of accomplishment and hunt while doing it. The other thing we want to achieve with this service is the feeling of buying an item while you are on the run. For example sitting on the tram, chatting with a seller and suddenly you are the owner of a new-to-you sweater. We believe that this will give both the buyer and seller a sense of accomplishment or in other words the feeling of “ahh, then I was done with that” and hopefully lead to a sensation of joy and completion. It will also relieve the hassle of going into crowded stores on Saturdays and instead use the time to sit at a cafe and chat with friends. We believe that this can take some of the focus from task to life. On the other hand, it can introduce the hassle of meeting someone, buying an item, go home and then discover that the item did not fit. It’s important that we think of these scenarios as well.

We want the swipe to serve as a mental break, and that you don’t need any specific purpose to open the app and just look for a bit, and then you can put it away. In the evaluation of Hippi, it was mutually agreed upon that this app fits perfectly into dead-time such as when you are waiting for a friend, sitting on the bus or checking your phone before bed, the latter mentioned was some of the contexts that was mentioned by the participants. They also said that “I could even use it when I’m with friends” but this belongs under the next key motivator "connection".

Connection:

The second key factor in "joy in life" is connection. Holtzblat addresses that cool tools helps us to connect with people who matter to us, and that what’s making them cool. Cool tools that facilitate this, addresses features such as texting, collaborating in a game or other factors that maintains the social relationship with others, by just dropping by when you are on the run.

We found out that most of the apps that the interview participants were using on a regular basis are apps that primarily facilitates connection. Apps such as Snapchat, Facebook messenger, and Instagram. That provides a platform for communication and self-affirmation in terms of likes and comments. We also understood that new apps are often discovered through friends, in a word of mouth-manner.

During the evaluation they said that Hippi felt so cool and simple, that they would even use it when they were hanging out with friends, to see if they found something nice. We interpreted it as a convenient thing to do,
"swipe a bit" and show items to each other while hanging out, watching television or doing other things. In the same way as they are checking Snapchat or Instagram.

**In Hippi we considered the following:** It was important to facilitate for social connection internally in the app, to feel that you are not alone and that you are in a crowd of like-minded people to some extent. To feel a sense of community, and see that other people are doing the same thing as you, selling and buying second-hand. This service also includes that you have to meet others in real life, during the transaction phase, when you are picking up or handing over the item that has been acquired. We thought that it was important to include pictures and a link to their Instagram, so the person you are meeting can be identified as a real person. It also facilitates a conversational topic among friends by asking a friend if she/he knows this person that you are meeting, or showing your friend a nice new dress you found in the app. We also wanted the registration to go through one of the most used apps on the market, Instagram. It was also important to implement the functionality of being able to follow people that you like and know, and vice versa.

**Addressing this factors in other concepts:** In our first iteration during the ideation, we came up with the idea of making a swap party event-planner, a platform for facilitating private or public swap parties. In this event-planner, the key motivator for this service was connection.

**Identity:**

The third key factor is identity, our quest for self definition continues throughout life, from we are young to retirement. Different phases faces different challenges, especially in our target group who’s in adolescence years. Cool tools help us find out what others in the same phase are doing. It helps us to find examples of behaviour, clothes to wear, values and activities. Especially in the adolescent years we’re trying out new things and considers if it "fits for me"

Identity is a key factor for Hippi seen holistically. We want to target adolescent girls. Making it a social network of clothes. We found out that the girls had a need for feeling unique and individual when it came to style, they like to identify themselves with other influencers and for some of the more materialistic focused participants that expressed that they cared a lot
about what they wear daily, it seemed more important. This phenomenon seems to appear at an early age as well, that you find inspiration and wants to follow someone cool [55]. For other participants, they expressed that it didn’t matter so much, but almost all of the girls had swapped and borrowed clothes from friends, and it appeared as a common thing to do.

One of the girls expressed that it was really important for her to be unique when it came to clothing style and look, she expressed that she was really aware of “what’s hot and what’s not” when it came to fashion and trends, and that it was important for her to not follow these trends but rather have her own style. Early in the interview she mentioned a piece of clothing that “everyone uses” these days, and said that she did not use this piece of clothing, because it’s too mainstream. At the end of the interview she said that this specific piece of clothing was used occasionally by herself at School. We believe that latter finding has a connection to their age group and importance of feeling independent and unique (further elaborated under section Motivate our users)

During the evaluation, one of the participants mentioned that this felt like something that is more directed to me and my friends. And it was an important factor regarding what they said about Finn.no. Mentioned under Accomplishment

Another aspect discussed among ourselves during this process was the importance of having opinion leaders using both sides of a second-hand app. It is common for services that facilitate second-hand consumption to involve celebrities, bloggers or opinion leaders in order to attract users. Normally, they sell clothes from their redundant wardrobe, but they are rarely buying second-hand themselves. Contrary to the app Tise [66] who involved a well-known celebrity in Norway named Jenny Skavlan, she encourages second-hand consumption and reuse, and is a diligent second-hand consumer. We believe that this is one of the key reasons for their sudden success.

In Hippi we considered the following: It’s not easy to prototype a feeling of coolness with identity in mind, we believe that this comes from the contributors in the app. We tried to show it with placeholder photos imitating Instagram profiles from our target group. Girls in their age group are used to see opinion leaders posting photos of “today’s outfit” showing
their style, and generally posting aesthetically beautiful pictures getting confirmation via likes. And their style is often imitated by their followers. Today’s technology with Instagram filters, VSCO(camera app), and phones with high-quality cameras lets everyone participate on par with others. It’s “easier” to get famous in 2017, and everyone has access to see you. We believe that it’s a natural part of their life to show their identity online, and that they get confirmation measured in likes and comments. This is important to acknowledge in this section. At the end of the day, the contribution of nice pictures of clothes is the main ingredient for this app to be considered cool, we are just trying to facilitate the features for this to happen.

**Sensation:**

The fourth and last key motivator for joy in use is sensation. Sensation is a perception of stimuli through our senses. A visceral experience, being drawn into the pure sensation of life. Products that give us these sensory immersions take us away from everyday life. The key for design is making the sensation a natural part of your product. Such as natural playfulness, and it does not need to be a dominant reason for being cool, they can create cool moments.

We found out during the interview that Hippi was the service that provoked the “wow” factor. The participants thought that it was fun to use, and they expressed feeling such as “This is FUN!” ”This appeals more to me and my spare time” etc. Also addressing the fact that they would like something that did not take a lot of time and effort, and gave no reward at the end.

**In Hippi we considered the following:** After the first evaluation with users, we felt that this service was the one that provoked playfulness. At it seems to be the embedding of ”the swipe”, that made it playful. The swipe is seen as something exciting, and you get the feeling of browsing through a physical photo album.

We believe that the feeling of getting confirmation on your sales, will also give a feeling of sensation in terms of your clothes being liked by others, as well as buying new-used clothes from others will provoke a feeling of sensation in terms of conducting a transaction you have planned for yourself.
6.2.2 Joy in use

The triangle of design is design principles for the design for joy. It's principles that facilitate for joy in use, we are now elaborating on how we have used these design principles in the process, emphasising on the making Hippi.

Direct into action:

The first segment of joy in use is "direct into action". Cool tools let the user achieve their intent right away, in the most natural way without any road blockers or something that stops the user from its flow.

We designed the app with the design principle familiarity in mind [19] We believe that familiar design that the user recognises, is intuitive design, and lets the user go direct into action. We used common guidelines from the iOS human interface guidelines [24] and some design elements from the material design guidelines [39] These guidelines are encouraged used by Apple and Android, when designing apps for their platforms. We designed our app for iPhone usage, but we were inspired by some solutions that material design for android uses as well.

We designed that it also should be easy to get in and do the swipe action right away, you need to connect with Instagram (or antoher SoMe account) to create an account, but this is not necessary until you want to buy something or sell something. Your are in the middle of the main functionality, with no long registration forms, tutorials etc.

If the user finds a product she wants to buy, she can use the big red button to send the seller a message, saying that she wants to buy it, or ask for more info about the product.

Every main functionality is accessible through the hamburger menu. There is some more "hidden" functionality such as "my impact", but it's not the main functionality nor a critical feature in terms of the intended primary use. "Start swiping" button and "add new sale" button affords call to action. Shaped as two big buttons

The hassle factor:

The second segment of joy in use is "The hassle factor". The hassle factor is the direct into actions evil twin. Hassle is a huge part of our regular life, and every invention removes hassle, but it also introduces new hassles who belongs to the new invention.
Figure 6.2: "Start a chat" button

Figure 6.3: "Call to action" buttons
We believe that the hassle factor that we remove is the hassle of browsing through grid views with that shows the same item over and over again. Sometimes it feels messy to browse around in apps, where you get everything or only one thing.

**The tinder swipe** The interaction type that we based our main functionality on is an interaction type introduced by a dating app named Tinder.

The tinder swipe is based on the "natural" way people interact when they are in a nightclub a Saturday evening, you see someone’s face and decides whether you want to approach this person or not. It’s called the “sizing up” scenario, you see somebody you start with their face, then you try to find a connection. The tinder navigation may seem a bit superficial, and it probably is. But what’s the difference between shopping clothes and a night out at the club?

Why did we think of this as an interaction type that could be used in Hippi? Think of how you shop, you walk into a store, you gaze around, you may have one or two goals while heading into the store, maybe you need something to wear at a birthday party, maybe you need a pair of new pants for regular use. You don’t know exactly what you are looking for, but you have a mental model of something. You start to look around, trying to find something of your taste. And this is why we chose to use this type of interaction in our concept, to show something more.

![Figure 6.4: Swipe interaction](image)

Other issues concerning the designing of Hippi, was that when you go into a physical second-hand shop, you can find something really nice, but they only got one size. We wanted to solve this issue by tailoring the service accordingly, so the app knows which size the user uses, and it got an additional filter option for typing in desired sizes.
Adding another option  In the beginning, we thought that we would show the user just one sale at the time, but after the heuristic evaluation, we got feedback that it felt a bit monotonous not to know how many hits you got on your filtering options or how long should I expect to browse. So we added the option of showing all the results in another view.

Our decisions based on the empirical material:  In the first evaluation we had with our target group, they pointed out that it was important for them to have something that they could share with their age group, and that services such as Finn.no is targeted at their mom and dad, rather than their age group, and that this service is over filled with everything from car parts, to horse equipment, to Ikea furniture, mainly things that they don’t care about in their point of life.

The delta:

The delta is the context necessary to achieve "direct into action" in the very beginning. Do the user understand how they use it? Is it difficult to learn?

As we mentioned under the "direct into action" section, we designed with familiarity in mind. To make it easier for the user to go direct into action, with no learning stretch, only a short introduction when you enter
the app. It was also important to address the design principle consistency so the user doesn’t get lost in the interface. That every back button is placed where it should, that the same colour occurs when there is an alert.

Here’s an example of how we used consistency and feedback as a guideline for telling the user that something is active.

![Figure 6.7: active and passive states of icons](image)

Mapping of the menu is how it’s usually done two different groups, one with four elements and one with two elements. We also included settings in the bottom. It was important to have call to action buttons that stood out.
Our decisions based on the empirical material: The tinder-swipe was something they had seen before, but they told us that they had never used the app itself before. The tinder swipe is well known, at least by their age group and above. They said that they were not allowed to use it, and that may be the case for them to actually implying that this is cool.

Summary

We used intentional design for innovation, that underlines the factors that are important when designing for cool [22]. We used aspects of the
framework in our design, design process, and when we analysed our findings. We believe that this has helped us addressing important aspects of cool, and that it enlightens the user experience. The latter has not been measured and can not be proved.
Chapter 7

Reflections on our work

As we had a limited time frame developing our service, the final product was presented as a prototype, not a fully functioning app. We were not able to measure if the technology can be addressed as a techno-cool[10], in terms of successfulness or if it’s highly desired, because we did not have the time nor a functioning service to actually test it in a real life situation. We tried to address as many aspects from intentional design for innovation, trying to make it as cool as possible, in our setting. We used customer journey maps to get a sense of the holistic context of use, we tried to address motivational factors interpreted from SDT and designed with the framework of intentional design in mind, and at the end, we explained the prototype in the light of joy in use and joy in life.

If we had more time, we would have implemented more functionality based on our own ideas and suggestions from feedback received from the evaluations. Possible features include a social feature providing the opportunity for the users to suggest items to friends through the app, and a feature supporting the transaction. Given more time, we would also have done more research on the aspect of enlightenment on environmental issues by extending the feature "My impact". Possible extensions would be including more competitive factors comparing sustainability impact with friends, neighbours, classmates, etc.

The limits of evaluating sustainability

At the beginning of this project, in the phase of research question formation, we started to map out how we could change behaviour among young girls, after some feedback we decided to step away from this type of research question and shift our focus towards motivation and awareness instead. Why we decided this, was because measuring behavioural
change is complicated [52] . The reason for this, is the lack of contextual information during the evaluation phase, among other things. How can one measure behavioural change without being in the context or having a study over an extended period of time. That being said, we focused on the motivational part, motivation in itself is something that is also hard to measure, especially when we’re trying to motivate the girls by making them aware of certain aspects that they assumingly never thought of before. But we had to take some short cuts since this study only lasted for a shorter period of time. Using other types of measurements than a long study regarding the girl’s behaviour. When we conducted our workshop, we interpreted what the girls expressed in terms of words and meanings, we also asked them to rate our concepts and try to imagine where and when they would have used the different services. Our empirical material is based on what they said and the interpretation of their meaning, done by us.

**Numbers of participants**

The interviews consisted of 5 girls, giving us material to move one to the interpretation and conducting a thematic analysis of the data. Preferably we would have had a higher number of interviews. The same goes for our concept evaluation and workshop, we planned to conduct the latter with 5 girls, the day before 3 of the girls cancelled because of unforeseen events. We had to conduct it with only two participants. In hindsight, we should have conducted the evaluation with a higher number of participants.

**Working on the thesis as a team**

Working on this thesis as a team has been a great experience. There were many benefits of conducting our research in collaboration. In workshop and interview context we had one person taking notes and the other person asking questions. We were able to interpret the data from two different points of views. What we see as the most valuable experience is that it gave us the opportunity to have meaningful discussions regarding our thesis, and it was beneficial during concept development, as we could built on each others ideas.
Chapter 8

Conclusion

In this thesis, our aim was to develop a service for girls, aged 15-20 years old, with emphasis on support and motivation. Our focus was to design for a better user experience using the empirical material collected from our target group, motivational theory, knowledge of barriers and applying the framework of intentional design for innovation.

Our main research question was a follows:

*Designing to support a more sustainable consumption - Can improvement of user experience in services for redistribution of clothing, support and motivate to a more sustainable consumption among adolescent girls?*

The girls we interviewed in our initial user research expressed a positive attitude towards using online redistribution services for clothing, but they had limited or no experience from existing services on the market. We detected a gap between their attitudes and actual behaviour. We investigated the user’s barriers towards sustainable alternatives, and also the motivational factors. We further developed several concepts aiming at reducing barriers and addressing motivational factors. We conducted an iterative design process, based on the methodological framework of user-centered service design. Evaluating each concept with the target group, led us on to one concept that we focused on in the remaining time of the project. We ended up with one final prototype; Hippi.

In this prototype, we addressed the girls needs such as the need of being unique and cool, applying the theoretical framework of intentional design for innovation. Emphasising on how our target group perceives *joy in life*, and we addressed these factors when designing for *joy in use*.

In the end, we can not prove that our "design for a better user experience can lead to a more sustainable consumption among adolescent
“girls”, because of the limits of evaluating sustainable services, such as the one we have designed. We have laid a foundation for further development and research.

8.1 Future work

The next phase of this project will be to develop this service further, to the extent that it can be tested in a real life situations. This will enable the investigation of the service’s impact on sustainable clothing consumption habits among our selected target group.

In our thesis, we decided to focus on providing a tool for the actual process of posting sales and discovering new items. Other aspects of the redistribution process, as providing features to support the transaction, would be an interesting subject for further research.
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Appendices
Appendix A

Informed consent form
Forespørsel om deltakelse i forskningsprosjektet:
“Collaborative consumption: Designing for change in consumer behavior among young girls”

Bakgrunn og formål
Formålet med studien er å utforske hva jentene mener om forskjellige konsepter utarbeidet på bakgrunn av unge jenters meninger om gjenbruk av klær og tjenester som tilbyr salg av brukte klær.
Prosjektet er en masteroppgave ved Institutt for Informatikk ved Universitetet i Oslo.

Målgruppen for studien er unge jenter i alderen 16-21 år. Du er plukket ut på bakgrunn av interesser og alder.

Hva innebærer deltakelse i studien?
Studien kommer til å bestå av fokusgruppe og et spørreskjema. Din deltakelse vil vare i maksimum 2 timer. Vi vil gjøre lydopptak og skrive notater.

Hva skjer med informasjonen om deg?

Prosjektet skal etter planen avsluttes 01.08.17. Datamateriale som ikke er anonymisert ved prosjektslutt vil bli slettet.

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli slettet.

Dersom du ønsker å delta eller har spørsmål til studien, ta kontakt med Martine Rolid Leonardsen, tlf: 482 83 241, epost: martirle@ifi.uio.no eller Vilde Fjeldstad, tlf: 975 39 039, epost: vilde.fjeldstad@usit.uio.no. Veileder for prosjektet er Swati Srivastava, tlf: 934 70 869, epost: swatisr@ifi.uio.no.

Studien er meldt til Personvernombudet for forskning, NSD - Norsk senter for forskningsdata AS.

Samtykke til deltakelse i studien
Jeg har mottatt informasjon om studien, og er villig til å delta i studien.

________________________________________________________________________________________________________
(Signert av prosjektdeltaker, dato)
Appendix B

Interview guide
Intervjuguide

Tid:  
Sted:  
Utstyr:  

Intro
Velkommen! Vi skriver masteroppgave om kjøpevaner, så vi vil gjerne høre om dine tanker rundt dette. Vi vil ta opptak av intervjuet for å slippe å notere underveis, det er bare vi som vil høre på dette og opptaket slettes i etterkant. Vi har et samtykkeskjema som må signeres (forklares)

Oppvarming
- Hvor gammel er du?
- Hvor bor du?
- Profesjon?
- Interesser?

Hoveddel
Kjøpsvaner
- Er du opptatt av klær og mote? (Snakke litt rundt dette, bloggere etc)
- Hvor mye bruker du på klær hver måned? (ca)
- Hvordan er shoppevanene dine?
  - Eks. Bruker du lang tid i butikker, ender du ofte opp med å kjøpe ting i siste liten, liker du å lete lenge etter et perfekt plagg?
- Hva er viktig for deg når du kjøper klær? (Kvalitet, pris, merke, snitt, mote..)
- Om du kunne handle på hvilken som helst butikk, hvilke butikker hadde du handlet på?
  - Hvorfor?
- Har du klær du hjemme du aldri bruker?
  - Hva skjer med disse klærne?

Bruktkjøp - vaner, erfaringer og motivasjon
- Hva er ditt inntykk av å kjøpe brukte klær? (first to mind)
- Har du selv kjøpt klær brukt?
  - Hvis ja:
    - Fortell litt om hva du kjøpte og hvordan (loppemarked? app?)
    - Hvorfor valgte du å kjøpe dette brukt? (Motivasjonen bak)
      - (Penger, miljø, fordi det ikke finnes på butikken?)
• Hvilke tjenester for kjøp av brukte klær på nett kjenner du til?
• Hvilke av disse har du besøkt? Og har du kjøpt noe på noen av dem?
  (Hvis kjøpt på nett)
    • Velg en tjeneste du har brukt, og som du har best erfaringer med
      • Dra oss i gjennom prosessen hvor du har kjøpt et plagg
        • Hva var bra? Hva var dårlig? Hva kunne fungert bedre?
        • Føler du at tjenesten inneholder det du trenger?
• Kjøper vennene dine klær brukt? Hvorfor, hvorfor ikke?
• Hvis du skulle lete etter noe å kjøpe brukt nå, hvor ville du lete? (first to mind)
• Hvordan leter du? Søker du etter spesielle merker, eller leter du deg igjennom en feed.
• Hva slags plagg kan du tenke deg å kjøpe brukt? Hvorfor?
• Hva ville du ikke kjøpt brukt? Hvorfor?

Bruksalg - vaner, erfaringer og motivasjon

• Hva er ditt inntrykk av å selge brukte klær? (first to mind)
• Har du kjøpt klær du angrer på?
  • Hva gjør du med disse klærne?
• Har du noen plagg hjemme som du vil bli kvitt? Isåfall - hvilke?
  • Hvilke alternativer vurderer du for å bli kvitt plaggene?
  • (Vurderer du å selge? Hvorfor? Hvorfor ikke?)
• Bruker du klærne dine til de er helt utslitt? Hvorfor / hvorfor ikke?
• Hva ville du ikke ha solgt av tekstiler du har hjemme?
  • Hvorfor?
  • Hva gjør du med disse?

Cool-down

• Stoler du på personen du skal kjøpe/selge av?
• Hva kan få deg til å stole på selger / kjøper mer?
• Hva er det tryggeste (enkleste?), kjøpe eller selge på nett?
  • Hvorfor?
• Noen andre tanker rundt dette med kjøp og salg av brukte klær?

Avrundning

Runde av og takke for deltagelsen.
Hva er hovedmotivasjonen din for å kjøpe/selge brukt?

Påstander (Ranger disse fra 1 - *, hvor 1 er mest relevant, du trenger ikke rangere de som ikke angår deg i det hele tatt):

- Jeg kan kjøpe noe jeg ønsker meg, som jeg ellers ikke ville ha kjøpt til ny-pris
- Jeg må altid kjøpe brukt, har ikke råd til nytt
- Jeg gjør det på grunn av etiske årsaker
- Jeg gjør det på grunn av politiske årsaker
- Jeg tenker på miljøet
- Jeg gjør det på grunn av at jeg finner finere ting når jeg bruker lang tid i bruktbutikker
- Jeg liker å bruke lang til på å finne unike gjenstander som ikke finnes i vanlige butikker
- Jeg liker at brukte gjenstander har en historie
- Jeg finner ikke de samme tingene i vanlig butikk (uavhengig av pris)
Appendix C

Heuristic evaluation
Heuristic evaluation

Heuristics

1. **Match between system and the real world (J. Nielsen)**
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

2. **User control and freedom (J. Nielsen)**
Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

3. **Aesthetics and minimalist design (J. Nielsen)**
Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

4. **Flexibility and efficiency of use (J. Nielsen)**
Accelerators — unseen by the novice user — may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Task scenarios

1. Create a new sales post
2. Browse clothes
3. View saved items
4. Check your messages

Level of importance

- Critical
- High
- Medium
- Low
Appendix D

Workshop presentation
Workshop
Design for bærekraftig forbruk

- I oppgaven skal vi lage en tjeneste for å oppmuntre til bærekraftig forbruk
- Målgruppen er jenter 15 - 20 år

Vi vil ha deres hjelp, ved at dere sier deres mening om de forskjellige konseptene. Husk at dette handler om funksjonalitet mer enn utseende på appen. Det grafiske blir gjort om før appen er ferdig.
Samtykkeskjema

- I dette studiet hjelper dere oss med å si deres meninger og komme med ideer på hva vi kan gjøre bedre. Dere er til stor hjelp.

- Dere kan trekke dere fra workshopen når som helst

- Vi vil gjerne ta lydopptak om det er greit for dere
  - Det er ingen andre som skal høre på dette lydopptaket bortsett fra oss, og vi sletter det etter at vi er ferdig med å skrive.
  - Navn og andre ting som kan spores tilbake til dere vil bli anonymisert.
Planen i dag

1. Dere blir presentert med de forskjellige konseptene vi har laget
2. Dere svarer på et spørreskjema
3. Vi har en diskusjon på slutten, hvor dere får noen spørsmål vi kan diskutere
Konseptene
SwapApp

Gjøre det enklere å gi bort, låne bort, få eller låne klær av venner og bekjente

Opprett eller bli med i eksisterende grupper

Lånt ut kjole til venninne? - Hold oversikt og purr via appen

Feed Søk Legg ut klær Opprett og bli med i grupper Profil - med klesskap Oversikt lånt + utlånt
Hippi

En app for gjenbruk, hvor man kan finne brukte klær på en ny måte.

For kjøp og salg hovedsakelig i nærområdet

Interaksjonsmekanismen er tindernavigasjon

Man stiller inn på forskjellige filtre for hva man ønsker

Appen lærer seg hva du liker og ikke liker,
ved hva du har trykket ja og nei på.
Earthling

En app hvor man bruker omvendt psykologi for å lære om klimautslipp, ved å spille forskjellige spill.

Man kan konkurrere mot vennene sine
FLY AWAY
Tap the correct destinations on the map and fly away, pollute the earth as much as possible

Let's go!

Oslo - Paris
Welcome to HIPPI

Get started
I already have an account

Don't like it
I love it

Start swiping
FLY AWAY
Tap the correct destinations on the map and fly away, pollute the earth as much as possible.

Let's go!

Oslo - Paris

Destinations: 8
Distance: 400,000 km
Your CO2 emissions: 300,000 kg
Appendix E

Customer Journey Map
# Customer journey map

## Phase
- **Before**
- **During use**
- **After**

## Touch points
- **Smart phone app**
- **Downloads the app**
- **Posting a sale**
- **Swipes**
- **Recieves a message**
- **Checking messages**
- **Advertisement**

## Actions
- **Enters the add via facebook**
- **Goes in to appstore**
- **Takes a picture of the pair of jeans**
- **Looking for what others posts**
- **Get's in touch with some one interested**
- **Sees if someone have sent a message**
- **Sees a Hippi ad**

## Channels
- **Facebook**
- **App store**
- **In-app**
- **In-app**
- **In-app**
- **In-app**
- **Facebook**

## Thoughts
- **“This looks interesting, I want to sell my unused jeans”**
- **“ahh, need to wait for the app to download”**
- **“wow, this is was easy”**
- **“Okay, cool. Hope someone messages me”**
- **“Nice, hope she wants them”**
- **“No one, wants to buy my pair of jeans”**
- **“Ohh, there is that app. Not going to use that anymore”**

## Emotions
- 😎
- 😓
- 😊
- 😞
- 😡