IXD and Second-hand Shopping experience

Interactions to better the user experience of second-hand stores to attract Fast-Fashion Consumers to Second-hand Shopping Experience

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Abstract

This project deals with the potential interaction design that can create ways for fast-fashion consumers toward using second-hand clothing. Through contextual inquiries, main insights were used to guide the prototyping. This led to creating Vintage Block, an app and in-store experience consisting of three different ideas. The first one is a raffle that inspires more people to give quality items to the store for a chance to win the monthly premium item. This is in hopes of receiving a wider variety of sizes and styles from the customers. Secondly, the use of upcycling to customize through the app as well as through QR codes on items at the store. That aims to incentivize customers to download the app and potentially fulfill their shopping needs. Thirdly, an online shopping experience through the app where there is no shipping option to promote sustainable behavior and lower transportation emissions.

Keywords: Interactions, Sustainable Interaction Design, Disruptive UX, Second-hand clothing, User Experience
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1 Introduction

1.1 Context

Fast fashion has been detrimental to the environment in the way people shop globally, while second-hand has the potential to be the favored option. The fashion industry is the second most polluting industry, and interaction design can be used as a tool that might offer suggestions on how the clothing life cycle can be prolonged (Dissanayake, 2019). Fast fashion impacts the environment in numerous ways, such as polluting water sources, releasing chemicals and reducing the air quality of the factory’s location (Dissanayake, 2019). Therefore, the way clothing stores operate can impact the environment without the users necessarily recognizing it.

An exploration of vital parts of a fast fashion consumer’s experience is essential to attend to their needs or change them by offering a new service. Moreover, comparing the different shopping experiences is important to build an understanding of the opportunities that can attract them towards the more sustainable option. Exploring the experience of second-hand shopping versus fast-fashion is essential to understand the disparities and shortcomings of second-hand stores from the perspective of fast-fashion consumers. The perception of second-hand clothing differs in parts of the world. However, it is becoming more trendy as vintage fashion, sustainable behaviors, and environmental impacts have drawn more people, as well as economic motivations which helped bolster the sales of second-hand clothes.

While there is a focus on sustainable practices in fashion brands today, I will explore the potential that interaction design has from a user experience (UX) perspective to provide suggestions on what second-hand stores can do to compete in the fashion industry while remaining sustainable. The research will focus on understanding the relationship between consumers who prefer fast fashion as well as investigate how they perceive second-hand fashion to make it more attractive. Another area that will be researched is to find out what inefficiencies in relation to sustainable behavior happen at second-hand stores and will follow up with investigating the possibility of providing a potential solution. The potential solutions will be in relation to making the user experience of second-hand stores more attractive than currently is as well as more sought after compared to fast fashion stores while lowering the environmental impacts through promoting sustainable behaviors.

1.2 Aim & Contribution

Since the field of interaction design in combination with second-hand shopping does not have much research material on it, I aim to present how
an interaction designer can work with second-hand clothing using a user-centered design process. There is a potential for highlighting how second-hand stores can work more towards providing a better experience for their users and customers for a better reach. The contribution of this project would be to present potential digital solutions to attract fast-fashion consumers to second-hand clothing stores through interaction design.

1.3 Limitations

This project does not intend to imply that second-hand should be the only option in the future in order to increase sustainability in the fashion industry, but rather investigate how to attract more fast fashion consumers towards second-hand shopping. Finding high-quality clothes can be hard to attain for a second-hand business. The project is focusing on attracting fast-fashion consumers toward second-hand clothing, it excludes the input of stakeholders who only shop at second-hand stores during the preliminary testing of the concept. Second-hand shoppers were included in the high-fidelity prototype testing. Some participants have shopped and worked at second-hand stores, but it is not their go-to option. Moreover, this project will not be able to test the business aspect in practice, but insights are discussed with a participant who works with establishing a business in fashion. It is important to recognize that the perspectives of employees of the different stores might not be shared or in agreement with the store owner’s views.

I intend to test the prototype with multiple fast fashion consumers, second-hand and fast fashion employees, second-hand consumers, and designers to gather as many perspectives as possible. The input would be in relation to the shopping experience (front end) and the implications of the design solutions (back end) to understand the infrastructural needs.

1.4 Ethics

The project follows the GDPR regulations, all participants were given a consent form to sign digitally. All data gathered was handled in accordance with the university's guidelines and remained offline through an external hard drive. Permission from the participants to use images included in the report was attained. There was no personal data collected other than images that do not show participants’ faces and a field recording for the purpose of extracting their insights. All the data present is anonymous, and the profession is mentioned at times to give context to the insights. All data will be disposed of by the end of June 2022.

1.5 Structure

This thesis will first present a literature review of existing material from the interaction design field regarding second-hand shopping, sustainability,
clothing, as well as understanding the different motivations for second-hand shopping. This can highlight opportunity areas within the design process. There will be an exploration into which medium of second-hand shopping to design for, in connection to fast-fashion consumers. All this will lead to brainstorming and developing ideas based on user research. After creating multiple sketches, the user is then consulted in order to get their input and evaluate whether each concept is successful. Lastly, low-fidelity and high-fidelity prototypes are created and tested with multiple stakeholders’ inputs in order to get a broader perspective of their needs then reiterated based on their feedback.

1.6 Research Question

Through this project, the aim is to find possibilities to attract users of fast fashion to shop second-hand digitally and/or physically. There is a need for an exploration of different types of second-hand shopping, which will help in the design process and bring together how an interaction design project works with sustainability leading to possible positive impacts.

Research question:

How might digital design promote fast fashion consumers to shop at second-hand clothing stores online and physically in hopes of promoting sustainable behavior?

Sub questions:

What are the different places that second-hand consumers meet?

What attracts consumers to choose fast fashion garments in comparison to second-hand options?

Are there ways that a second-hand store operates inadequately regarding the shopping experience and sustainable behavior?

2 Background

This section will look at how interaction design has been used in relation to sustainability and will list examples of how technology and fashion can work together. A deeper look into second-hand shopping is also important in order to understand the different reasons that attract them to make purchases at second-hand stores. Moreover, examples of past and current projects concerning clothing desires, technological advances, and interaction design will be presented.
2.1 Sustainability and interaction design

The concept of Sustainable Interaction design is not new, and there have been rubrics to evaluate and consider the environmental impacts of the outcome. Eli Belvis coined the term Sustainable interaction design (SID) in 2007. The rubric includes finding wholesome alternatives to use, sharing for maximal use, active repair of misuse, achieving longevity of use, disposal, recycling, salvage, and achieving heirloom status (Belvis, 2007). Within SID, Belvis presented a framework for methods, reasoning, and design values. Belvis defines design as “an act of choosing among or informing choices of future ways of being” (Belvis, 2007, p.505). This can be a way to highlight the importance of thinking about the future while designing. For methods in SID, it highlights the implications of the behaviors on sustainability while designing. Belvis goes on to say that there are other concerns of behaviors that a designer should think of in relation to sustainability, such as obesity (Belvis, 2007). Belvis presents the following rubric (Belvis, 2007):

- Disposal: the outcome leads to materials, tangible and intangible, being disposed of inherently or by implication
- Salvage: can the outcome recuperate tangible or intangible materials from the design
- Recycling: Can the outcome use recycled or be recycled at the end of its life cycle?
- Remanufacturing reuse: Can the outcome of the tangible material be reutilized though the outcome is computerized?
- Reuse as-is: Can another user reutilize the outcome?
- Achieving longevity of use: Can the outcome allow the extensive period utilization of tangible entity by a user?
- Sharing for maximal use: Can other users utilize the outcome once the primary owner is done using it?
- Achieving heirloom status: Can the outcome lead to other users being attracted to the tangible or intangible outcome and receiving it in similar conditions while experiencing it?
- Finding wholesome alternatives to use: Can the outcome remove the desire to utilize tangible assets to keep and possibly bettering the state in which society operates to fulfill the needs of the users and their interests?
- Active repair of misuse: Can the outcome aid in mending the impacts and utilize resource-efficient replacement?

The rubric presented will be used to evaluate the environmental implications of the potential design solution in the discussion section. There is a potential symbiotic relationship between second-hand items and their potential to create a sustainable interaction design experience.
A system with the potential to work towards changing and inspiring changes in the market through sustainable user experience can draw the attention of a new target group. Tao Huan presents the concept of “Disruptive UX for Sustainability” which can help to promote SID. Disruptive UX for sustainability is an approach to user experience research and design that radically rethinks the paradigms of business with sustainable goals (Huang, 2016). The main focus is on making people consume less and recycle more, businesses pollute less, and profit more from new revenue (Huang, 2016). The author presented four ways of rethinking, which are: visualization of information to change perception, creating platforms to connect people and business, disruptive innovation, and automation to remove barriers (Huang, 2016). Disruptive innovation is defined as “technological innovations that change the existing market and create new markets.” (Huang, 2016, p.487) Moreover, that way of rethinking is considered to be the way to building a sustainable system, while on the other hand, some consider it a risky method to change a system which can cause disturbance to the way businesses operate (Huang, 2016). An example given by Huang is how the taxi industry was impacted by the introduction of Uber and the decline of car ownership in areas of the world (Huang, 2016). It is important to state that not all impacts are anticipated, as once a service is available to all, it is difficult to control if and when it will catch on.

There is a need to recognize that the user experience cannot be touched, but still, it is connected to a physical artifact and created through the experience with its interactions, and it has an impact on one's surroundings (Huang, 2016). It is important to understand the domain of second-hand and attend to the user's needs while rethinking how sustainability is addressed. Huangexpresses that when designing for sustainability, the aim should not recreate existing designs but rather create changes in behavior towards sustainability (Huang, 2016). A solution with the potential to create a new market for fast-fashion consumers within second-hand to promote sustainable behavior can be described as disruptive innovation.

### 2.2 Customization and Upcycling

Customization can be an essential tool in creating a connection with an item, thus prolonging the object's life cycle. The benefit, according to D.G.K. Dissanayake, regarding influencing a product’s design, or having the user's needs met by building/adding their desired customizations on an item, can cause the benefit of prolonging an item’s life cycle (Dissanayake, 2019). “This process of involvement could probably replace the joy of customer shopping experience and provides a higher level of satisfaction with the total experience of creating and purchasing personalized fashion clothing.“ (Dissanayake, 2019, p.3). This approach does not have to replace the shopping experience, in-fact it can be integrated into the traditional shopping experience. A simple example of customer customization in the
clothing industry is for sports shirts that have the customer’s name on the back; these have some emotional value instilled into them, which makes people hold on to these items for a longer period. A large number of customers are leaning towards paying more for custom items. “82% of teenagers and 92% of the youth and adults voted for customized products over mass-manufactured products” (Taieb & Cheikhrouhou, 2016, as cited by Dissanayake, 2019, p.8). Another data set presented by Deloitte, shows that 41% of shoppers are attracted to purchasing clothing items that are available for customization (Dissanayake, 2019). While customers might pay more to customize items, it can lead to lower consumption of items and reduce the impacts of overproducing and overconsumption. On the other hand, the focus here is fast-fashion brands which can be seen as a system with inefficiencies in operating sustainably in general. This highlights the potential that second-hand has in reutilizing garments in hopes to attract fast fashion consumers and lowering the implications of manufacturing items on the environment.

Fast-fashion brands have the potential to operate sustainably and attract environmentally conscious consumers. Another aspect that is important to the clothes manufacturing industry is being able to create eco-friendly technologies as current technologies can prove to be unsustainable and impactful. One method to lower impacts from manufacturing is digital printing. Inkjet or sublimation printing methods have multiple advantages listed, such as “less time-consuming, flexible, and cost-effective ... quick response, ability to copy the original design fast, environmentally friendly production process” (Dissanayake, 2019, p.6). Moreover, there are efforts to create alternatives made with 100% recycled material such as what Re:newcell is doing. The company is able to do it as described “process turns cotton and viscose into a biodegradable dissolving pulp product called Circulose, which can then be used to produce new clothes” (Sherriff, 2019). On the other hand, it is still said to tackle the idea of being able to make items with the same quality (Sherriff, 2019). This shows there is potential in upcycling different items and various methods for implementing sustainable systems.

Upcycling brings on the opportunity to have users’ input be actualized on their items and build a connection. Upcycling embodies the circular economy system where older materials such as different fabrics are utilized to add value to another item rather than being thrown away to create waste (Marques et al., 2019). Upcycling gives the opportunity to change and add to different garments as the demand for customization of garments is increasing. (Taieb & Cheikhrouhou, 2016 as cited by Dissanayake, 2019, p.8) This method is both sustainable and can fulfill the needs of the different consumer groups, but it has to account for inefficiencies in how the consumer’s needs are met. (Han, Tyler & Apeagyei, 2015) (Marques et al., 2019). This area has the potential to be explored within second-hand stores
to attract fast-fashion consumers. Interaction design can be used for coming up with sustainable experiences by creating a new market for upcycling within fast fashion as well as means to design experiences where waste is minimized.

2.3 Second-hand shopping and Motivations

There is a spectrum of reasons that can motivate and attract people to shop at second-hand mediums and understanding them can help focus the area that is explored in this paper. Four different factors motivate people to shop at second-hand stores. Ferraro, Sands & Brace-Govan explain them as well as present the fourth motivation factor for second-hand shopping by conducting a study to see its validity. Firstly, Economic motivations such as lower prices and bargaining for items, for people with low capital, second-hand options help in lowering the weight of spending (Hamilton, 2009 as cited by Ferraro et al., 2016). Secondly, Critical motivations regarding nonconforming to how the system is run in regard to sustainability and ethics in the production or distribution (Ferraro et al., 2016) (Padmavathy et al., 2019). The third is recreational motivation, this occurs when exploring items for fun and fulfillment, as well as once they find an item fitting their criteria and the whole experience that is set around it (Ferraro et al., 2016). Another aspect of it is being able to touch and try the different items at the store (Ferraro et al., 2016). Lastly, they introduce a fourth motivation: fashionability, which deals with the desire to create your identity through clothing and can bypass the current hot fad (Ferraro et al., 2016). Fashionability within second-hand stores can be reached in a manner of being picky about what is displayed, which showcases quality and styles (Ferraro et al., 2016). Understanding the current motivations can assist in pinpointing what aspects can be included within the design as well as the importance of fashionability which can be connected to customization by means of Upcycling.

2.4 Second-hand shopping and interaction design

There have not been many examples of second-hand shopping in interaction design except for one that deals with Clothing Swaps. Baron's idea was based on a couple of design insights gathered to guide the prototype created (Baron, 2021). The final app design is called Swapeasy, which aims to make swapping clothes more efficient for the users (See Figure 1). One example would be choosing styles to filter items and the user being shown targeted items, as well as being able to review the person who you swapped with, and picking up items from Swapeasy boxes spread around town. The items would be posted by the users and then you can contact each other on the app and you would pick it up from boxes arranged by the users. Adding on, there are also public swaps if you want to explore in person. One of the main problems presented is that sizes are limited, and men's clothing are scarcer
in quantity than women’s. The importance of being able to touch the items and try them was also one of the outcomes of the project. There is a capability for finding public swaps. While the project is focused on clothing swaps it can give some insights into what an interaction design project can look like. Although the topic of SID was not discussed it is a good example that showcases it through improvements within clothing swaps.

An example of creating a connection between the item and the customer is a project done by OxfamCuriosity shop and Tales of things in their electronic memory project. This was done by customers being able to scan or using the RFID tag where they can hear information (See figure 2), such as the history of the item (time and place) and memories connected to it (De Jode et al., 2012). This project shows how interaction design can enhance the experience of second-hand items to consumers through technological means in hopes to attract consumers.
2.5 Sustainability and Profitability

There has been a preconceived notion that being more sustainable means less profit is generated. While this is an interaction design project, it is also important to highlight this aspect since this affects what the decision-makers would consider to be a viable project. The World Economy Forum and the Boston Consultancy group researched the connection between sustainable practices and profit, and they found out that those companies who implemented sustainable systems saw a higher profit margin (Haanaes, 2013) (Gurnani, 2020). They looked into how these companies in the developing nations go about doing this. They found three different strategies that these companies implemented, either a particular one or numerous of them. Firstly, spending on environmentally friendly alternatives in return increases the future yield and decreases the price of operations (Haanaes, 2013). Secondly, using changes that are classified as miniature can lead to allocating money to new methods by retaining funds (Haanaes, 2013). Lastly, by looking at the whole system and recognizing inefficiencies in resource management as well as the impact caused by inefficiencies in the customer journey, it is beneficial to iterate upon the current system by receiving a continuous feedback loop, such as by including different stakeholders and getting their input on the different user journeys (Haanaes, 2013). This showcases the potential that companies who consider sustainability in their practices can inspire small alterations in the system but can be impactful and profitable.
2.6 Insights from the literature Review

Two projects pertaining to Interaction design and second-hand are presented. While one presents an approach of interaction design within clothing swaps it still shows the value in potential issues in connection to styles and sizing. The other example showed the potential of adding QR codes and RFID tags on items to tell the story of the previous owner of the item. There are different mediums for second-hand such as flea markets, online stores, Swaps, and second-hand stores. Considering the different motivation factors in the design process and designing for it can be helpful regarding creating an experience for fast fashion consumers. Upcycling seems to be a solution to customization in creating new items in the second-hand domain. It also showcased that profitability and sustainable practice can have a symbiotic relationship.

3 Methods

3.1 Double Diamond

Following a double diamond approach for the design process offers iterative merit (Design Council, 2007). This would benefit the project by scoping it through the first diamond and iterating the prototypes based on the user's feedback. I will start with desk research, which is done in order to understand the field of sustainable fashion practices and second-hand clothing and how they can relate to interaction design. This will lead to conducting a literature review where an overview of the different aspects of the topic is brought together. In the design process, the ideation phase based on the field research will lead to sketching different concepts and brainstorming how they will be manifested. Seeking user input from fast-fashion consumers will then lead to creating wireframes, low-fidelity prototypes, and high-fidelity prototypes. How Might We (HMW) statements are a tool that helps to frame the opportunity area during the design process in the ideation stage (Procter & Gamble, 1970 as cited by Rosala, 2021). The double diamond approach has merit in a project like this as it is user-centered and demands input from multiple stakeholders.

3.2 Literature Review

Literature review has a lot of merit in building a project to understand the different information available to find challenges or opportunities within the field (Muratoviski, 2016). Moreover, it helps a designer to understand what information is out there and aims to add more value with information gathered to the domain area. As presented in section two, different theories such as SID, Disruptive UX, second-hand motivations, Upcycling, trends,
and insights from past projects. There is a base to tackle issues that may arise during fieldwork and inform the potential design solution.

### 3.3 Empirical Research

Contextual inquiry (CI) is a valuable tool to recognize how different stakeholders conduct themselves in the context of the research area (Whiteside, Bennett & Holtzblatt, 1988) (Wixon et al., 1990). To make it seem less intrusive in the context of shopping, they would be engaged in conversation about their thoughts and experiences. While you can take notes or film the different CI conducted, there is more of a preference for audio recording in the context of shopping (Whiteside, Bennett & Holtzblatt, 1988) (Wixon et al., 1990). Later on, the recordings will be used to extract data and guide the design process. To make participants more comfortable, some participants knew each other so they could share their real feelings during the shopping experience. Understanding the desires of fast-fashion consumers is one of the essential aspects of this project, this leads to creating interactions that they would desire. In this project, it is important to receive input from fast-fashion consumers, as well as fast-fashion and second-hand clerks when designing the system because this can assist in being critical and iterating upon parts of the design.

Semi-structured interviews are when you interview people where the structure is kept to a minimum in hopes of understanding how the participants feel about a topic and uncovering their experiences (Moore, 2000 as cited by Muratoviski, 2016). In this project, this would mean gathering different perspectives to highlight issues regarding the topic or while testing the prototypes to gather user experience insights and feedback. Moreover, the mediums chosen provide more comfort for the participants since they have the choice between having notes taken during the interview or the audio being recorded.

### 3.4 Prototyping

Wireframing is a method to understand the layout of the screens and interactions as well as what the contents would be on each screen (Yang et al., 2016). It helps create a visualization of the structure of navigating and helps in implementing one feature at a time. Some of its benefits are that it is a cheap way to prototype, you can use pencil and paper or a digital tool, to design and test out the layout for the application features. In this case, Adobe XD was used to create the wireframes. I plan to use this to start helping to plan the interactions and start thinking about how everything will be displayed.

Houde and Hill establish a model that focuses on the interactions themselves. The model shows three different types: Role, Look & Feel, and Implementation prototypes. Role prototypes are when a prototype requires a contextual base when tested (Houde & Hill, 1997). Look & Feel prototypes
focus on the user experience where it is put together artificially or genuinely (Houde & Hill, 1997). Lastly, the Implementation prototype is when creating an operating system to be tested (Houde & Hill, 1997).

The focus will be on creating a Look & Feel and implementation prototype which will be made possible through low-fidelity and high-fidelity prototypes. These prototypes will then be tested with the target user group. Low-fidelity prototyping is an easy and cheap way to test out an idea and receive feedback on it. Time-efficient merit for a designer to try and iterate upon an idea (Nissinen, 2015). For this project, Adobe XD will be used to create a look and feel prototype and to create limited interactive behaviors.

High-fidelity prototypes focus on functionality, and Interactive behaviors are more apparent where the user can use the prototype similarly to that of a developed concept where different aspects of a design can be explored (Nissinen, 2015). With the focus on creating an implementation prototype, this project will highlight the different aspects available to showcase the essential usability of the concept for the final prototype. Using Protopie to create a high-fidelity prototype will be useful as different interactions are available, and its cost-effective merit to testing out an app on users.

3.5 Futures Wheel

I will be using the futures wheel method to highlight both the positive and negative impacts in connection to prototypes as a way to address possible issues (Glenn, 2003). This is a tool used in Speculative and Critical Design. This helps with the iteration and evaluation of the final prototype and can be used as a tool to be critical of the design (Glenn, 2003). There is always a possibility for impacts that are not seen since a solution is not tested on a large scale. Adding on, it assists to find aspects that can be seen as drawbacks and potentially inspire the future works section in this project. Using a tool like the Futures wheel helps in thinking about the implications of a concept as it can guide shortcomings of the potential design solution.

4 Design Process

Following the double diamond design process with the aim to discover how different users experience shopping at second-hand stores physically and online, as well as guide the exploring and defining in the next steps (Design Council, 2007). The CI method was conducted with both the internal and external stakeholders to understand their feelings and needs when it comes to designing a good online second-hand shopping experience. I was able to find and interview people who have worked at second-hand stores, fast fashion consumers, and online shoppers. With five different people sharing
their shopping experiences in different contexts, the information obtained can be used to help guide the design process. The CI was conducted in three different physical destinations and three virtual meetings. The destinations were a flea market, a fast-fashion digital and physical store, a local Second-hand store, second-hand online stores, and an online vintage store. By the end of this section, a clearer focus will be reached, and they will guide the second part of the double diamond process.

4.1 Contextual Inquiry

CI consists of four different principles, which are Context, Partnership, Mutual interpretation, and Focus. Partnership in this project means that there is a collaboration between the participants and research person within the context of shopping. Mutual Interpretation is to agree on common grounds of insights. Context is the place that the activity in question is conducted. Focus is what the researcher wants to gain knowledge about from the CI (Whiteside, Bennett & Holtzblatt, 1988) (Whiteside, Bennett & Holtzblatt, 1988).

The merit of using this method can help understand the needs of the user group in the ideation process. The context is the focus of this thesis, in connection to the way the participants conduct themselves in different shopping mediums and the possibility to contrast them to have a clear need in helping to create concepts (Whiteside, Bennett & Holtzblatt, 1988) (Wixon, Holtzblatt & Knox, 1990).

The participants were aged between 19-23, and although irrelevant to this project but for context’s sake three of the participants identified as men, and two identified as women. The age group was chosen since it falls under the group that makes the most online purchases as the age group 16-24 is the biggest segment of online shoppers. (Eurostat, 2021). The participants were shopping in different settings to further highlight their needs and their thoughts about the shopping experiences. It was organized as they would be shopping with a friend to ensure that they feel comfortable and share their thoughts freely.

4.1.1 Online Shopping

For online shopping, the participants were observed visiting multiple clothing websites and apps to help build and express their needs and the inefficiencies that they are experiencing. To help compare both online fast-fashion, second-hand, and vintage stores were explored. H&M being the fast-fashion store, Eriksjälpen being the second-hand store, and BeyondRetro being the vintage store.

The participants were given the opportunity to explore and voice issues which they did, for example, issues on the second-hand store and vintage second-hand store websites (See figure 3 & 4). “It can make me not want to
buy from this website when I notice something is off visually” one of the participants expressed and two others followed with the same sentiment. Lee et al. explored how impactful it is for an online store to be visual presentation and interactivity as well as the importance of features fulfilling the needs of the consumers (Lee et al., 2010). This could be because the user is not familiar with the store which might impact reliability in their eyes.

Another thing they noticed was “Prices are more expensive than I thought they would be” when visiting the second-hand store website and second-hand vintage they all expressed that the prices are higher than they expected them to be. That means to start shopping at a second-hand store there needs to be a better experience either in-store or online. The main insights were the disparity in how the images are shown, from the clothes picture background and having models wearing the clothes for some and not all apparel in the store. On the plus side when it comes to the fast-fashion online store, information about the makings of the item in connection to recycled material was highlighted.

When it comes to the second-hand vs the vintage store online shopping experience. The customers appreciated that the Vintage online store displayed the available sizes before the customer selected the item to view its details. Interestingly, the participants leaned towards calling the Second-hand store a vintage shop as well in order to get rid of the negative connotation and to sound more exclusive.

A benefit that all the online shopping sites shared was that it gives the participants more time to think about, pick and choose items. However, it is good to note that there is a higher “time stress” when it comes to second-hand and vintage online stores versus the fast-fashion store due to the stock of items since most of the second-hand items are one-off items.

A drawback in the online clothing shopping experience for some participants is not being able to try on the items which highlight the importance of touching the items. “I think It might be more crucial to touch and try on the item than fast fashion online deliveries”. This highlights one of the differences in how the users view the desire for being able to analyze items before purchasing.

There is a need to explore ways in which the size is displayed which can help create a more seamless interaction regarding second-hand. Moreover, the desire for touching items, analyzing, and trying them on is higher in the second-hand domain (See Appendix A for Raw insights).
Consolove choice
A padded capcoat in water-repellent, windproof quality. The capcoat has a zipper and windbreak with push/buttons at the front. Stacked side pockets on each side and easy slit at the back. An inner pocket. Listed.

Size — The model is 108cm/42.5" tall and wears size M.
Composition — Lining: Polyester 100% Padding: Polyester 100% Outer layer: Polyester 100%
More durable materials — Lining: Recycled polyester 100%; Polyester: Recycled polyester 100%

Figure 3: Second-hand display of items (bottom). Presentation information in connection to recycled material in fast fashion brand (top).

Figure 4: Misalignment in the user interface when presenting items on a second-hand website.
4.1.2 Flea Market

The total shopping time for the participants in the flea market is the lowest and that can be due to multiple factors. Firstly, since the vendors is nearby standing as the customer is looking at the items for sale and they are approached by the vendor in case they needed help or if they have any question, this makes the shopping experience more impactful for them than buying an item similar it in a store. As the prices are not always visible when attending a flea market, three of the participants felt discouraged to ask the vendor and possibly get the vendor’s hopes up. One participant expressed the following “I do not want to give them hope and take it away as items are cheap. I would buy something, but I would not use it.”. Furthermore, stalls in the flea market only take cash which can create an inconvenience. “Needing cash to buy things can be a hassle so you would need to plan to take out cash from an atm near you or go around the city to find one”. This can showcase some of the aspects of flea market shopping that can deter customers.

While taking the different participants to the flea market a lot of insights arose. Most notably that they are pickier than second-hand stores with what they provide and display. There is the excitement of finding something that three participants described as “hidden gems” which correlate to recreational motivations. After inquiring about what makes something a hidden gem, they described it as “A big issue is that some items do not have any size tags or anything to display it. The experience is better in person than that of an online one. There were items in good condition and some items highlighted the price more than once (see figure 5). They were all more inclined to buy winter clothes as they were a number in great condition and would stay away from direct contact items like underwear or swimwear. This can be interpreted as a limit on what a second-hand store offers compared to fast-fashion stores.

There are aspects to flea market shopping that appeal to the participants from an experiential level. A multitude of styles are presented, and the conditions are good, and some items even looked brand new. The variety of clothing styles present in the flea market is contrary to the fast fashion shopping at H&M which is seasonal. For example, three of the participants found that the winter items displayed offer a great deal as both the price and condition are good. “It is quite fun to explore flea markets since you do not know what to expect” one participant expressed. This could be considered a merit to flea markets where the element of surprise and exploring are prevalent (See Appendix B for Raw insights).
4.1.3 Fast Fashion Store

The participants were taken to H&M to understand their needs and go through how they shop. This especially helps in creating a wider range of variety in shopping experiences to contrast between them. All five of the participants have noticed the QR Code Scan but have not used it since they have not had a reason to yet. The main reason that they have done this is so the customers can use the app to scan and see what is available if their size is not at the store or they can see if the item that they are looking for is in stock at another store. Four of the participants expressed that if they are doing online shopping, they would not necessarily go to the H&M website but rather to the store. For context, there are multiple physical stores in Lund and Malmö to shop. The participants spent the most time in the store as there were different styles and item types that peaked their interests. While trying on items one of the participants was trying on a Letterman Jacket and although she liked it, she expressed that H&M tries to make fashion trends, and if it catches many people will have the same thing. This brought forward the idea of what customization and upcycling can offer.

Going to a fast-fashion store was essential to provide the participants with a wide variety of shopping experiences and to be able to put them up for comparison. The first impression was the color scheme at the store and how they noticed that there are scannable QR codes at the store. One of the participants stated that the presentation of styles through mannequins is utilized and can help them draw inspiration from them (See figure 6). As mentioned before, one participant expressed that H&M tries to make trends and if the jacket style becomes trendy everyone will have the same thing.
This correlates to the fashionability motivations and the possible benefits of customizing an item. A drawback that was expressed while shopping is that the price of the items should be updated in connection to a discount rather than needing to calculate if you are buying multiple discounted items. This is the case for some items that two of the participants deemed inconvenient if they are buying multiple things in a physical store in comparison to an online store (See Appendix C for Raw insights).

Figure 6: Styled mannequins (left), Clearly highlighted section discounts on the item (right).

4.1.4 Second-Hand Store

The participants noticed that the men's clothing styles and sections have fewer options than the women's section. Visible stains on the items shown can deter people from trying them on (See Figure 7), as well as missing information about the size or price at times. While discussing with the participants a few of them highlighted that the word vintage would be more attractive for them as fast fashion consumers. The clothes seem like they were never washed before being put up for display, the same goes for showcasing dirty shoes, and a jacket that had a hole, which gives a lazy impression to the customers. Moreover, items are not presented well to the customers with mannequins being found in the non-clothing sections (See figure 7). Some users expressed dissatisfaction in being at the store because it looked messy giving a poor aesthetic.

By having the participants visit the second-hand store Erikshjälpen last, we can have a clear way of pinpointing opportunities and needs that need to be met. “Men’s clothing is a bit more scarce” was one of the first things said by three of the participants while the other two participants started in the women’s section but agreed with the sentiment.
In its current form, the second-hand clothing shop does not appeal to the participants for multiple reasons. “Wow that smells” was one reaction from a participant analyzing an item that for example you would not get to experience in your decision-making through an online shopping experience. “This makes me think that having the possibility to visit the store and being able to view an item online can be helpful.

The topic of building connections with items was brought up in relation to what items you would not want to get rid of. The example given was a football shirt with their name on it, the reasoning was that this simple customization built an emotional connection with the item. They also expressed that children’s clothes with customization would be beneficial as “simple lettering on the item would be an option for gifts as well as parents can save money in comparison to buying brand new sports shirts that they will grow out of”. Although that is a good point in building connections, children would want the new season sports shirts of their favorite teams and maybe that is not a possibility for a second-hand store to have that option in quantity or quality. Nonetheless, Upcycling can bring on more people as one of the participants already knew this phenomenon while it was explained to the other four. Responses were “I would definitely be interested in creating something new and changing the type from a shirt to a hat”, and “Would be interesting to see how you will show the process for this”. These were the shared sentiments between the five participants (See Appendix D for Raw insights).

![Messy presentation (top left), Stained items on display (top right), Mannequins not utilized in the clothing section (bottom left), Women’s jacket in the men’s section (bottom right).](image-url)
4.1.5 Contextual Inquiry Overall Insights

Through the CI users experienced both physical and digital mediums to be able to contrast their experiences. The contexts within shopping experiences were a flea market, fast-fashion physical and digital store, digital vintage store, and Second-hand digital and physical store. During the flea market CI, both the participants and the sellers agreed that part of the thrill is hunting for the items and that the experience would be lowered if done digitally. The idea is that customers can be deterred by how the store presents itself in a physical or virtual manner. Showcasing the styles and presentation of second-hand clothing can be beneficial as well as being pickier with what they put up for display. As Baron (2021) also found that there is a scarcity between men’s and women’s clothing selection, the participants expressed the same sentiment. For online experiences, the way items are presented should be in a similar manner across the entire store and not have image and button sizing issues for example.

The main findings from the participants during the online CI is there are more superior experiences in how few steps are needed. Being able to browse without needing to sign in makes it more likely that the user will indeed explore the store catalog. The visual presentation is important, from the layout being symmetrical to how the price and sizes are found. There were some surprises in connection to the pricing of second-hand items as you can pay a little more for a brand-new clothing item. Moreover, the importance of being able to touch the items physically and try on the items is higher in the second-hand domain than in fast fashion shopping. Insights from the second-hand store showcased the importance of the needs in the experience and the possibility that customization would have. It provides building an emotional connection between the items and the consumer. The focus of second-hand stores is to create an appealing experience for their consumers but does not account for how new groups will experience it. The outcome should bridge the gap between fast-fashion consumers and second-hand clothing.

4.2 Semi-Structured interviews

In these semi-structured interviews, the aim was to get into the personal thoughts of a second-hand clerk and upcycling designer on the topic of second-hand and what they believe can deter people as well as hear their experiences (See Appendix E for questions). This will help guide the second diamond to develop potential solutions as well as help within the scope of the project.

4.2.1 Upcycling and Second-hand Clerk Insights

One of the participants used to work at a second-hand store and gave insight that the clothes that they received were not washed and were put on the shelves. The participant expressed that “They think the more they
display, the more profit they can get”. While from an experiential level, the stains and the presentation can deter people from trying on the items. This aspect can impact all the shopping motivations negatively not only for second-hand consumers but also for fast-fashion consumers. Moreover, while discussing shipping and delivery, the interviewee expressed that people can pay to get things delivered to their houses by buying in the store or online. This highlights the transport emissions that they take part in reducing sustainability. Moreover, items that have holes and can be repaired are thrown away which highlights the potential for upcycling within the current model.

Another participant is working towards establishing their own upcycling brand, which was valuable for the project to understand possible issues with how the project would be carried out if it came to fruition. The benefits expressed were that it creates something unique for the customer and can prolong an item’s life cycle by fulfilling the desires of the consumers. A drawback is when creating an upcycling item, it can take a lot of energy to recycle the item back to its original form. Another thing is that the time used to customize an item is dependent on the specs of the user and there is a possibility that it does not fulfill their expectations.

The outcome of this while talking to two participants with prior knowledge of working in a second-hand store was that they do not clean the clothes that they get. This can deter people from trying on the clothes since in some cases there are visible stained clothing. Customer comes back trying to return the item due to, for example, the stain does not come off, or there was an unnoticed defect.

4.2.2 Insights From Semi-Structured Interviews

The method seemed to bring valuable insights about second-hand and upcycling from the participants. The presentation of items is based on profit maximization as the thinking is that if there are many items and styles available, the consumer would eventually find something fitting. There is a potential for upcycling in second-hand stores as clothes are thrown away if they are ripped. This ties with customization through upcycling and the possibility of reutilizing materials to create something new.

The insights aided in creating the following how might we statements:

- How might we encourage the use of customization in creating an emotional connection between the consumer and the item through digital means?
- How might we create a second-hand experience that attracts shoppers towards digital and physical means?
- How might we create ways to receive a variety of sizes, styles, and more quality items?
4.3 Ideation Process

The ideation process was guided through the *HMW* statements and insights from the CI to guide the development stage of the process. Below, you will find five different ideas which will then be evaluated through user input as well as to see if they are successful in addressing the current issues.

1. The first idea is called Raffle for a hidden gem: This is where people can drop off clothes at the store and receive your raffle numbers to input through the website or possibly pay to participate. It would highlight an item of value for customers to win. This can attract more fast fashion consumers to visit these stores and participate as they can anticipate a digital raffle done once a month (see figure 8). The donated clothes would need to go through quality control for the participant to get an entry. One accepted item would lead to one entry to the raffle. The event would be live streamed on the website and take place in the store.

![Figure 8: Sketching of the Raffle idea](image)

2. The second idea is to build an app where you can customize second-hand clothing from multiple stores and see where they can pick them up (see figure 9). You would be able to choose designs you like or create your own to be printed. The idea of having a network for different stores within a city can highlight the quality items and can become a recreational motivation for fast-fashion consumers.
3. The third idea is an in-shop experience where people can try the clothes on and then customize them through a QR code that takes them to the app (see figure 10). This idea highlights the importance of being able to build connections between items and the consumers within the store. There would be a scannable QR code on the tags of the items where you can edit the item or see similar items. This gives both Fashionability motivations where users are encouraged to create items and try them on as well as touch the items.

4. The fourth idea is AI-based designs based on user input of information. This can attract more users to the second-hand store through the technological experience that this can bring. The users would fill in answers to the prompted questions and once it is
submitted, they can see the item relating to their input (See figure 11).

Figure 11: AI customization input fields

5. Lastly, an AR visualization of designs on items with hopes of bringing attention towards an in-store AR experience. The “mirror” would overlay items you select and would work as a screen as well (see figure 12). This can showcase both fashionability and recreational motivations to the consumers.

Figure 12: AR Visualization Mirror
4.3.1 Evaluating the Concepts

While brainstorming ideas during and after conducting interviews and contextual inquiries there were five main ideas to attract fast fashion consumers. These ideas were then presented to the five fast-fashion consumers to see their input on whether it would be something they would be interested in.

Listing of criteria and advantages and disadvantages of the solutions was essential to evaluate against the goals of the project outcome (see table 1). These are based on user research and the aims of the Solutions through the HMW statements. The criteria for evaluating the ideas are as follows:

1. Accessible (Inclusivity in the design)
2. Easy to use (Fulfilling the needs of the users)
3. Promote Instore shopping (In hopes to help the in-store experience and perception)
4. Attracts fast fashion consumers (Through shopping motivations described in section 2.3)
5. Attracts more people to give second-hand clothing (Attempting to provide wider variety)

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*Table 1: Evaluating the different ideas in relation to the desired outcomes*

As presented in Table 1 after talking with multiple users, it was clear that there is a possibility to merge different ideas into a single prototype. The idea is to bring together the raffle idea, customization, and QR customization together. The customization options would also deal with the upcycling possibilities. There are opportunities for behavior change within being able to shop online and pick up your item from the store. This also
shows a focus on lowering transportation emissions of shopping. Moreover, all four second-hand motivations can co-exist in this system.

The QR customization can enhance the in-store experience by being able to see possibilities of changing the items and would not interfere with those who shop the “ordinary way”. This could satisfy the participants regarding being able to try on the items and analyze them.

Building an app for a second-hand store that has the elements of fast fashion brands and exploring different ways of app interactions that can make a second-hand store app stand out.

While presenting the Raffle to the participants it brought on a potential activity that three of the participants would take part in depending on what the item is. While the other two participants seem to believe that it can connect but not necessarily with them as they do not have clothes that they get rid of regularly. Moreover, it has the possibility to bring a higher amount of men's clothing as well as increase the style variety. Potential drawbacks are it can be difficult to have a desirable item each month and receive a good amount of quality items in the store.

The AR “Mirror” would be useful in bringing users into the stores to experience the items and the changes being visualized in front of the users through an interactive screen. It has drawbacks of accessibility in the store, maintenance, and higher cost from being able to operate i.e. electricity.

AI-Based input might seem interesting to work on, but it would not necessarily attract the users towards second-hand stores but rather testing out what the AI creates for the user. While this will probably be available in the near future it can be difficult to conduct the project justly in this time frame.

4.4 Prototyping Concept

The concept will be an app rather than a website because it is accessible and would be the most suitable way to implement the QR code interactions and raffle information, as well as inputting your own designs through your phone (See figure 13).
Based on the HMW statements created through the CI and literature review all the aspects are covered. As there are many different needs of fast fashion consumers and the aims of the project prototype are highlighted through the criteria in section 4.3.1. The option to scan items at the store and customize them through the app to your own wishes highlights two HMW questions. It can connect to both creating a connection between the item and the consumer as well as creating a second-hand experience that attracts shoppers towards digital and physical means. Lastly, the raffle idea which aims to promote more incoming quality items with a variety of sizes and styles. This concept aims to have the elements of shopping motivations present as well as the interactions and design connecting to sustainable behavior. As all the previous points show, this is a complex field that has many different user experience needs and that is the reason why three of the ideas are compiled together.

4.4.1 Wireframes

It was important to display the different features and interactions in the app. While making the wireframes, typography and icons were also explored to think about the layout and visual presentation (see figure 14). The wireframe helped showcase the basic needed interface which is used to guide the low-fidelity prototype and sign-up flow.
Figure 14: Wireframes for the app highlighting its features

4.5 Low Fidelity Prototype

After making the wireframes, I noticed there are other important screens that were not provided which were added as can be seen below such as the different screens in the customization process. There were iterations made to make it as simple as possible for the user and condensing screens (see Figure 15). The app was tested with six fast-fashion consumers, one second-hand clerk, and one upcycling designer. The prototype concept name is called Vintage Block (see figure 16) (To test out see Appendix F). Although it has limited interactivity the user testing was still valuable in showing a Look & Feel prototype where users were encouraged to test it out, ask questions and give their feedback.
4.5.1 Feedback on Low Fidelity Prototype

When presenting the low fidelity prototype to eight different users from multiple stakeholder groups the feedback provided listed both advantages and disadvantages. The stakeholders include five fast fashion consumers, second-hand and fast-fashion clerks (See Appendix G for questions). The first thing was being able to enjoy the option to browse without needing to sign in as it can deter the user from exploring the website. Another thing was to add more sections on the home page and let it be known that it is clearly labeled with headlines. The idea of the possibility of connecting online and physical stores through the app experience was expressed that it has the potential to improve the store experience through customization and finding items to look for in the store to try them on. Another thing to
think about was the filter idea which was something brought up that sometimes it takes a while to find things that match your style at second-hand stores, so they enjoyed the idea of having preferences saved and being notified when a new item is available which fits their description. While testing out the interactions with one of the participants, there was a discussion between us about an option of being able to share your own designs if you want to, with others and create community design options for the less creative people. The user said it can be beneficial to build a creative community and help those who are not as creative in customizing an item. The users see the merit of visiting the store to try on the clothing item before they customize it to their wishes.

Presenting the prototype to an upcycling designer was helpful in providing more information on the possibilities that the customization stage can look like (See Appendix H for questions). It also gives an idea of what is needed from their perspective. While discussing the freedom of the user to develop their own designs in the app we talked about how the communication can look like as well as what things can be adjusted regarding the user’s needs. After discussing these things there was a realization that there would be an approval stage for creating your own designs on the app. This is where a designer would see if it were possible to go forward with the user’s wish. If the designer notices that something is not possible, they would send the user the proposed changes. Adding on, the user would have the option to accept or reject the item. This helps lower the dissatisfaction from the user if their wishes are not able to be met although in most cases the users would be able to see examples and see what is feasible. It also tries to eliminate the energy and the time it would take to recycle an item or create waste if the user is not satisfied.

After talking with participants with experience in second-hand stores we discussed what it would mean for the users, employees, and the infrastructure needed. Which led to the creation of the user journey maps (See Appendix I).

### 4.6 High Fidelity Prototype

For the final prototype, it was created using Protopie which is a prototyping tool to make interactive applications. It was used to develop a high-fidelity prototype and highlight more of the desired functionality and experience. While exploring how the different aspects of the design hold together 43 different screens were created depending on if the user chooses to sign in/up to the app. As one insight was to be able to explore the app without needing to sign-up as it was important to the users when using an app. It was important to think about behavior changes in creating an environmentally conscious system that would not impact the experience of the non-tech savvy shoppers of a second-hand store.
An idea that I brought up while presenting the idea to a fashion designer was creating a community design option, this was in connection to creating your own designs if users were time-restricted and unable to think up a design, and also showing the users approved designs. Past examples of upcycling designs were also important in giving an idea to the users of what has been done before.

Some aspects used the Look & Feel prototyping which was focusing on the experiences for the filtering and QR scanning. The participants would be given an example of what to search for in the filtering to show what the interaction would be like. For the QR code scan, the users would need to press on the outer screen to turn on the camera and then press a side of the box to show the item they can customize. Personalization was also explored in the raffle signup and when the User creates an account where their name would be used (See figures 20 & 21).

Being able to explore the app without needing to sign in or up was important to participants as it can deter them from using the app initially if they are not too familiar with the store which is one of the insights gained from the semi-structured interviews and CI.

4.6.1 Overview of Features

Below are a list and images of the different features and their flows (see figures 17-21) (See Appendix J to watch a video of the different features and try the app):

- Accessibility (Visual, highlighting which section you are in, the contrast in colors, searching for the desired item)
- Raffle (To gather and promote more incoming items to the store)
- Able to customize in-store items (Through QR codes)
- Being able to shop online without customizing
- Notified when items are available for pick up
- No shipping to lower transportation emissions
- Favoriting items that you want to check later
- Notification when a new item that matches your preference has arrived
- Able to see upcycled clothing
- Users can draw inspiration from community designs
- Presented similarly to fast-fashion apps so the user experience can be familiar and easier to navigate
Figure 17: A flow showcasing the customization feature focusing on turning a t-shirt to a tank top.

Figure 18: A flow of the home screen and different options (Men, Women, Upcycling and Filtering).
Figure 19: The raffle flow and different options depending on if the user is signed in.

Figure 20: Sign-up & Sign-in flow, Profile and Raffle entry numbers.
4.7 App User Testing

For the user testing, it was essential to have different stakeholders present to give their input on the concept. The different stakeholders that took part were a Second-hand clerk, a fast-fashion clerk, three fast fashion consumers, two second-hand consumers, and two stakeholders who shop at both sets of places (See Appendix K for questions). The participants were each given a phone to explore the app and present the different aspects of the concept. Some of the participants were present in earlier stages of the projects, but they were all presented with the concept's aim and then were asked questions based on the app concept to get their critical insights about the concept.

Some aspects were using the look & feel methods such as the filtering and QR scanning features. The participants would be told what to search in the filtering to show what the interaction would be like.

4.7.1 Feedback from Fast Fashion Shoppers

Fast-fashion consumers are the primary target group which makes testing the prototype with multiple participants that fit this group essential. One of the participants said they would “100% shop here” as it has simple and understandable navigation as well as being able to be creative in the customization process. Another expressed that having the only option for app users to receive the item is by picking it up from the store shows commitment to lowering emissions but might deter some fast fashion consumers. Contrarily, another participant expressed that you would still need to go pick up your item from somewhere in most cases but highlighted it would depend on the location.
Being able to find more information about the item, such as the year it was made, might be useful although it can be hard to pinpoint and would demand more workload for the employees. Three of the participants expressed that if a brand like H&M started a second-hand operation like this, it would attract them towards it. One aspect is because of the capital backing to actualize all aspects of the concept, and another is the possibility of being price competitive. Another thing was that if this were actualized, they would start using this concept of second-hand with a mix of fast fashion. This can attract the fast-fashion towards second-hand, which is a step in the right direction. A concern voiced is the potential scarcity regarding quality items as it becomes a matter of speed in purchasing once an item that matches your preferences is released (See Appendix L For Raw Insights).

4.7.2 Feedback from Second-Hand Clerk

Feedback received from a second-hand clerk highlighted the benefits of multiple aspects of the design. Having an app for a second-hand store presents a modern feel in attracting new customer groups. Expressed interest in creating ways in which more quality items are brought in although it may be difficult for different employees to have the same opinions during quality control (See Appendix K For Raw Insights).

The participant presented how might the quality control or placing of items on the app be where there would be a backdrop in the back with a camera to showcase the items. The digital team would then upload the item and create a QR code. Although second-hand is considered environmentally friendly there are ways in which it can improve, the second-hand clerk expressed that the pick-up option would work if it were only a clothing store but it can be difficult for a store with furniture. Having a camera roll effect in the preferences screen (Figure 23) utilizes the way items are presented in a manner that is compatible with second-hand.

4.7.3 Feedback from Sustainable Shoppers

It was important to understand how environmentally conscious second-hand consumers experience the concept. The idea of limiting the store to only pick-up is innovative while the consumers are able to shop through the app or online. Customizing or editing an item to your liking is great for lowering consumption and reusing materials to create something new.

The upcycling option being present brings on an opportunity to extend the life cycle of clothing garments as well as attempt to present another way of being sustainable. Furthermore, the participants conveyed that being able to see upcycled items that have been made helps convey some understanding as well as inspiration. There was a proposal for adding accessories on the first screen and being able to customize them as well. This is because they feel that an emotional or sentimental connection can be attainable through
those items as well. Being able to provide experiences for different types of consumer groups, the raffle feature of the concept can be successful in providing an incentive for more people within the community to bring in quality clothing items (See Appendix M For Raw Insights).

The participants enjoyed that the idea does not impede on the users who are not tech-savvy and can have sustainably conscious users as well. A drawback is a potential increase in prices if the customization option is opted for.

4.7.4 Feedback from Fast Fashion Clerk

While presenting the idea to the fast-fashion clerk, they expressed that there is a potential for their store to use the concept. They are working more towards mixing digital and physical experiences and the idea of being able to edit items which can make the customer experience more seamless. Furthermore, this can be an opening for a fast-fashion brand to lower the overproduction of garments as well (Dissanayake, 2019) (See Appendix N For Raw Insights).

The clerk voiced concern and stated that the idea of quality being the focus is essential, but it can lead to more expensive items being sold at second-hand stores. This can possibly push away some of the second-hand consumers though it can attract more fast-fashion consumers. Moreover, there are also limits on profitability as it can be difficult to find quality second-hand items in large quantities. They can see that there is a potential for this idea to be implemented within their store to help build a connection between the items and the customers. While some aspects of the concept would need to be altered like the raffle, it would possibly become a pure gamification through payment for entry into the raffle. This can still lower the potential of overproduction of garments.

4.7.5 Feedback from Fast Fashion and Second-Hand Shoppers

There were a group of participants that shopped at both second-hand and fast-fashion brands. Including them was valuable since they have experience with both shopping alternatives. Filtering items through the app can be a useful and more efficient experience as it can help a user to go to the store and try the item before completing the purchase. (See Appendix O For Raw Insights).

The idea of the potential that it can become a hub for designers to share designs and make items needs to be a potential future area to explore. The needs of the designers need to be addressed and work towards how their user journey can be like.

4.7.6 Insights from User Testing

Positive insights to creating ways in which second-hand stores can attract fast-fashion consumers. The pick-up only option brought a mixed reaction,
although many of the stakeholders enjoy the idea that a store being fully environmentally conscious can deter some fast-fashion consumers. Being able to sign-up for the raffle and your numbers saved on your profile to be messaged if you won was expressed to solve potential problems of unredeemed items. There was input in relation to extending the idea to accessories and working towards making a hub for designers to share designs. Moreover, quality control can lower the number of displayed items and the implications of different employees conducting quality control can lead to different standards.

4.8 Futures Wheel

It is important to consider the impacts of a concept if it is fully realized in society. While we can say that there can be different outcomes based on context, it is still valuable to be critical as well as highlight both positive and negative possible impacts on the users, stakeholders, and society as a whole (see Figure 22). The focus is on the probable and possible futures, where possible futures are more likely scenarios than probable (Glenn, 2003).

![Figure 22: Possible and probable futures of implementing Vintage Block](image)

There can be difficulties in creating the preferences feature as there can be faulty AI or the workload given to employees to tag items manually would be high if the clothes selection is high. It is unlikely that this form of second-hand shopping would disrupt the entire market as one of the main motivations for their current consumer group is finding affordable items. A potential drawback if the store is running on a small scale, the waiting time for customization using upcycling can be high if the demand is high and the number of in-house designers is low. Bringing in gamification can result in bringing in a variety of styles, sizes, and quality items to the store in hopes
of winning a premium item. A probable drawback is difficulty in the quality control stage if the demand is high as the customers would have to wait. Giving users the potential to customize and create an emotional connection which in return extends an item’s lifecycle which can be seen as a promotion of sustainable behaviors while attending to a user’s needs. Sustainable behavior can also be apparent with the pick-up option forcing the users to take the items from the store leading to less transportation emissions.

There are positive impacts possible by the implementation of the concept through having a Circular Economy this lowers emissions and increases the reuse of materials. Moreover, there is a probable future where a second-hand store that deals with upcycling can become a hub for designers to upload their designs. While monetary compensation may seem attractive and can bring on more attention from designers, it would depend on the capital and willingness to give a share to designers whose designs have been used by the public.

### 4.9 High Fidelity Iterations

There were iterations made based on the feedback from the participants from the user testing. There was a need to visualize what they needed to input to receive the search result that they were looking for. The idea is to showcase the interactions for the user preferences where the user will be able to input their sizes of different garments and colors as well as select the different styles that they are looking for (See Figure 23) (To test see Appendix P).

![Figure 23: User Preferences (Size, Colors, and Style selection)](image)

There is a potential to avoid potential inconvenience for users as they can submit the images of the item. This can limit the time spent by both parties and having the employee do a final screening in person. This is the idea of
being able to submit items for the raffle through the app and the user getting clear instructions on what to do. The users can also see the status of the submitted items (See figures 24 & 25). This is an opportunity to have quality control through the app and save time and possible transportation emissions through items not being accepted at the store.

Figure 24: Digital Quality Control

Figure 25: Showcasing Status of Items Submitted

An opportunity that was highlighted in the CI was that some users might not be able to give clothes every month to be a part of the raffle. While talking to a second-hand store employee, she expressed the benefit of having sale strategies such as buy two get one free as effective. The next step was creating something where users would still be interested in the raffle even if they are not giving clothes, which inspired the creation of a daily spin
idea. This is where the users can get a discount to use, get a free raffle entry or get a random percentage discount; they would be able to use the daily spin once every 24 hours (See figure 26). Moreover, there is a discounts screen where the user will be able to see the different active discounts and their validity and an iteration on accessing the raffle numbers (see figure 27 & 28).

Figure 26: Showcasing the Daily Spin interaction

Figure 27: Showcasing Discounts
5 Discussion

5.1 Findings

Second-hand does not have to be sustainable in its practice but in the concept created it deals with creating a system that is environmentally conscious through the shipping limitation to pick up only. This can still be implemented in a chain of second-hand stores which can create unique experiences for purchasing of items in the different stores. Moreover, fast fashion consumers, if they wish to buy online, most likely have to go to pick up their shipped items at their nearest post office. Henceforth this idea of being able to pick up items from the physical store while being able to buy online is not too foreign but would still need to be tested further. It is also dependent on the physical location as some users expressed.

The concept may show the possibilities that Interaction design has in the field of sustainability when creating, although it may not lower the demand for fast fashion as participants seem more attracted to different aspects of the design. It would mostly depend on the service they are presenting themselves. There is the potential for testing it more towards environmentally conscious consumers of fashion and iterating based on their needs. Moreover, there might be less interest in the possibility of technology from older shoppers while they can enjoy shopping without the use of technology (Eurostat, 2021). Further research on their needs can lead to an inclusive design solution. On the other hand, there are motivations for second-hand shopping still present, so it does not abandon its core
attractions but instead works on presenting potential solutions to attract fast fashion consumers.

As more difficulties arise if the concept is realized on a big scale, it can make people drive from other cities and might cause higher fuel consumption. Although if it is run on a big scale, it can lower its prices and possibly attend to the economical motivations for second-hand shopping. Another thing would be the convenience of having to pick up your item if you order online, this aspect might be disruptive to the current market. This can deter some fast-fashion consumers as the option of home delivery is excluded.

By having discounts added it can attract day-to-day users as they can be incentivized to bring in clothes and receive instant gratification rather than waiting for the end of the month. Moreover, being able to minimize the effort of the two parties to conduct the quality control for the raffle is beneficial in a number of aspects. By having it on the app it is more convenient for both parties as well as another way to lower the emissions if the user goes to the store for only submitting items for raffle entries.

5.2 Evaluating Second-Hand Motivations

The four motivation factors can be found in the Vintage Block concept. While economic factors are highlighted more there is a willingness among fast fashion consumers to pay more for customizable items. Testing of the concept would need to be done on a larger segment to validate if they would pay higher prices to be able to customize, have better quality items, and what the most important things are for their experience. Adding on, the option to buy items is also prevalent as some consumers like the items as is. The second factor is critical motivation, which can be highlighted in the concept of the environmentally conscious system expressed by all the stakeholders. To add to that, building connections between the users and the items has the potential to make fast-fashion consumers consume fewer fast-fashion items. For the third motivation, recreational motivations are still present in multiple ways, you are able to shop and explore items at the store and through the app. You are able to take part in the monthly raffle which essentially serves two purposes. Firstly, attracting more quality items as well as a variety of styles and sizes to the store and having more quality garments means a more effortless experience of finding items fitting their criteria. Secondly, is the gamification aspect that the raffle brings on from the anticipation of the number draw to see if you won.

Lastly, fashionability motivations were attained through multiple aspects. Firstly, being able to customize items by means of upcycling and in return being able to express your identity through your style (Ferraro et al., 2016) (Dissanayake, 2019). Another element is to implement a pickier system within a second-hand store in terms of what is presented and how it is presented to the users. It is important to recognize that a part of this project was to attract fast-fashion consumers to second-hand clothing but that does
not mean excluding the consumer group that is already there. It was important to still have elements of second-hand experience and motivations present in hopes of attracting second-hand consumers towards the experience of the design. The essential focus in the motivation for fast-fashion consumers is the fashionability aspect and being able to express themselves through the items. Focusing on the quality of the items displayed can lead to a better experience not only for fast-fashion consumers but for all types of consumer groups.

5.3 SID Rubric & Disruptive UX

Using Belvis’s framework rubric on the concept is essential in evaluating and creating a sustainable interaction design concept (Belvis, 2006). For Disposal in clothing, it would eventually be thrown away but through upcycling items, there can still be use of items that have some quality. Salvage is found where the upcycling is found as materials can be recuperated through both means within the app of customizing and the designer fulfilling the user's needs. Re-manufacturing reuse is apparent through upcycling and using materials to create new items or change the item type as the example given in the app is changing a t-shirt to a tank-top. Reuse as-is is found through being able to shop online or in-store through the items accepted in the quality control stage of the raffle. Achieving longevity of use occurs as the user is given quality selections digitally and in-person, as well as by building a connection between the user and the item through customization. This can lead to less consumption and more use of available clothing items. Recycling is apparent in the raffle where items that would be disposed of are received as well as the customization process through upcycling where materials are used to make something new. Finding wholesome alternatives to use is located within the different aspects of the concept through lowering emissions and promoting sustainable behavior through upcycling, raffles, and mixing the digital and physical world. Active repair of misuse is apparent through the upcycling perspective where items are fixed and then displayed accordingly. The concept does embody the rubric and the traits of sustainable interaction design and the potential promoting positive sustainable behavior.

In connection to Haung’s “Disruptive UX for Sustainability”, the concept embodies a few of the rethinking concepts (Haung, 2016). Creating a platform that connects people and business is evident through the app and brings the possibility of mixing virtual and physical mediums, being able to customize items, and creating a communication channel. The second one is disruptive innovation as this targets the needs of fast-fashion consumers. This can lead to ways in which you can bring the digital and real world together. The idea that you are able to make a purchase through the app but would need to pick it up in person can be deemed as disruptive. Lastly, automation to remove barriers is where the preference matching system can
help the experience of users rather than going to the store and not finding their desired styles of items.

By spending capital on employees for the implementation of sustainable systems, a user would receive a satisfactory experience and possibly bring in higher profits. While this is an interaction design project the question of capital has been brought up multiple times during the latter part of the project, which should be addressed. This concept is a new way to draw fast-fashion consumers towards better experiences while supporting behavior changes. This system can be a part of government-funded projects as it has the potential to lower consumption and emissions. Moreover, investing in new sustainable methods and systems can lead to higher profits as was discussed in section 2.5 (Haanaes, 2013) (Gurnani, 2020). The capital inquiry is dependent on how the business is run but the implementation of sustainable systems and methods can potentially lead to higher profits in the long run.

5.4 Critique of Concept

There are aspects of the design solution that would need further exploration and iteration based on the last insights. The raffle idea might be able to bring in more quality items, but it still remains unknown if it would attract donations of garments of different sizes. There is a negative connotation with second-hand stores for some fast-fashion consumers that this idea might not be able to solve. While there are customers that highlighted if a fast fashion brand like H&M would open a second-hand store and use some of the features presented within the concept, they would be prone to try it. Some customers stated that the pick-up-only option is bold in making a move towards more sustainable behavior, although it can deter some fast fashion users.

The QR code concept can be unfeasible in the current way in which regular second-hand stores operate as it is heavily based on volunteers. There are developers and digital teams at some second-hand stores depending on the scale of operations. While creating QR codes is not that difficult it can be wasteful to print out QR codes for each item as they are each unique. More user testing would be needed to carry out to see how items can be scanned in a more environmentally friendly way.

For the customization aspect, there can be issues in relation to fashionability motivations. Through community designs, you will be able to use designs approved by other users to insert into your own item that you are customizing. This can bring the issue of other people having the same design on their items which can limit self-expression and unique style.

For the preference matching, it can cause problems as there might be other people with the same preferences. It can be damaging to the experience of finding any item you like and in a second it becomes unavailable.
There can be issues presented where the quality control is done by different people. As different employees can have different perspectives and thoroughness when conducting quality control of items received there is a need for the creation of guidelines. This would need input from fashion & upcycling designers and second-hand clerks. Moreover, the last iterations created will need more user testing to have a higher potential.

Implementing this into a second-hand store would be costly and unrealistic for small or large-scale operations. It would not be profitable on a small scale as there are many expenses not only for the physical store but also for the digital infrastructure. On a large scale, it can have difficulties concerning time as waiting time can be high for upcycling designers’ input. There is a possibility of running on a medium-scale operation as they already have digital teams and would offer the users a satisfactory service. For example, they would not be backed up by orders.

### 5.5 Future Works

Firstly, there is not an extensive amount work/research done on this topic as of the writing of this thesis, hence there’s potential to build upon this and find other ideas of how interaction design can attract fast fashion consumers. Exploring other ways of interacting with the app could be the next step of the project.

Testing the communication channel between the users and the employees in regard to receiving a certain style of item for compensation (Discount or raffle entries). This can work towards how the business and the consumers can help each other i.e. if there is low inventory. In order to find out if this model will work, there needs to be more focus within that scope.

Further iteration upon the idea of the in-app quality control, and potential inputs, is needed to focus on potential to maximize efficiency for the app user and fulfilling their needs.

More focus and iterations on how community designs operate can help refine the idea. An approach can be exploring if the prototype can attract a different part of consumers through the designers and the ability to publish designs for others to use and is it feasible for them to be compensated. Exploring what it would mean for the concept also to be a hub for fashion designers as it can attract them towards a system that is environmentally conscious while delivering unique items, styles, and quality. Lastly, a geo-feature where you are able to see the different stores in the city could be useful as well as the potential of what it would mean to have other second-hand stores on the platform. Although they would have to focus on quality items.
6 Conclusion

To conclude, this project explored how digital means can attract fast-fashion consumers to second-hand shopping, while promoting sustainability. This was done through gamification by introducing a raffle that promotes sustainable behavior of re-use. This paper also attempted to identify a way to attempt to increase the variety of items and sizes available in the store, although there needs to be more research and testing in that area to recognize their efficiency in the long-term.

Creating emotional connections by giving the users the chance to customize the items through upcycling was well received by fast-fashion consumers. The communication channel has the potential to be explored and refined where it can build a loyal base and design community. Moreover, the community designs feature can be explored further than drawing inspiration but becoming a hub for designers.

The possibility of creating a mix between the store and the app through QR scanning was also essential in attracting consumers to visualize changes according to their wishes or community designs. Changing an item from a shirt to a tank top was visualized in the app and received positive feedback. Moreover, as identity is connected to fashion the app helps show you how you can stand out either by designing and receiving a message about the approval or alternative changes.

Adding on, the mix of the physical and virtual mediums can be useful from being able to try on the items before either buying them or customizing them. This also does not intrude on the experience of customers that are not tech-savvy or enjoy the traditional means of shopping. The system might be environmentally friendly, but it is not fully due to the QR code aspect where it can be seen as an unsustainable aspect due to printing a unique QR code per item on its tag.

And finally, while the pick-up only option may deter some fast-fashion consumers, the majority of the participants did not use home delivery, and it did not make a difference. This aspect presents a way to design for behavior change from the online shopping culture. All in all, this project presents an approach into how sustainable interaction design can aid in attracting fast-fashion consumers towards second-hand shopping.
7 References


8 Appendices

Appendix A

Insights from the Online shopping experience:

- Pictures are not displayed in a similar manner.
- Good user experience when available size is displayed instantly.
- More time to make decisions and compare clothes.
- Bad user experience due to not being able to touch and examine the clothing.
- Some image sizing issues which make it less visually pleasing.
- Vintage sounds more sophisticated.
- Presenting the clothing being worn by people gives a better experience and inspiration.
- It is bad user experience when the background colors of pictures are different, they should be the same.
- Pickier on what is displayed.
- The size is there but it can be more obvious while skimming.
- Most apps have the same look and user experience which can be boring.
- Can deter the customers from purchasing if they need to sign in or up to use the app
- Shopping websites differ more in design than apps.
- There are expensive second-hand items that one can pay a little more and get brand new.

Appendix B

Insights from the flea market:

- Visible stains.
- Hidden gems.
- All kinds of styles are available.
- Fun to explore.
- Participants would not buy underwear or swimwear from there.
- Condition of things is important.
- Good winter clothing.
- No display of price and size in most cases.
- The sellers are pickier about what they put on display.
- Better to be there in person for the experience they provide.
Appendix C

Insight from the fast-fashion store:
- Color scheme organization.
- Showcasing on each tag how much of the material used is recycled.
- Could highlight the sale section better
- Limited to only their own brand
- Showcases the percentages used of recycled material
- Sizes and price on display
- You need to calculate the discount at times
- As a customer, having a unique clothing style is trickier since everything they sell is mass-produced and easily become trendy. “I want mine to be a little different if they succeed at making a trend
- Every mannequin seemed to be styled professionally
- QR potential

Appendix D

Raw Insight from Second-Hand store:
- Not much men's clothing compared to women's.
- There are many stains on the clothing.
- Size issues.
- Second-guessing the cleanness of the products.
- Coats are more desirable.
- The display isn't appealing.
- They have mannequins in the wrong sections that can be of use.
- Potential to promote more vintage clothing.
- The word vintage can be more appealing to fast fashion consumers.
- Poor aesthetic as items are all over and no styling inspirations (See figure 7).
- Clothes are not washed.
- The presentation can be off putting.
- Clothes are thrown away if they need fixing
- Good deals
- No repairing available which leads to a higher waste
- Potential for upcycling
- Items for women found in the men's section (See figure 7)
- Having shipping as an option can be counterproductive in creating a fully environmentally friendly system
Appendix E
Semi-Structured interview with Upcycling designer:
What interests you with Upcycling?
What do you think second-hand needs to do to be more appealing?
What’s the biggest challenge so far in your experience?
Do you normally shop while being environmentally conscious?
Are there upcycling brands or websites that you are interested in?
What are the upsides to upcycling in comparison to other fashion options?
Do you think that customer input through technology communes can be interesting to bringing fast fashion into second-hand and upcycling?
What other ways do you think would attract fast fashion consumers?

Appendix F
Low-fidelity prototype link: https://xd.adobe.com/view/06bce4cd-8fc7-4903-93bc-oc2f697caab6-53ef/

Appendix G
Low-fidelity User Testing:
What aspects do you enjoy?
How would you describe your experience?
Are there things that you think are missing?
Would you shop at a store like this?
Are there visual elements that you would change?

Appendix H
Questions for Upcycling designer and Second-hand Store Clerk:
Do you think that both having second-hand stores and upcycling options can work together?
How would a collaboration work? would it be online? A mixture?
What options do you think should be included in the process of upcycling with the customer?

Do you think showing what upcycling can be through a mix of options would be beneficial for the users? Or would it be better to have a conversation and co-design that way?

Would the app aid the user in providing a better experience from being able to scan the QR code of the clothing pieces to giving options of upcycling and customization?

In your opinion do these methods help build a personal connection between the user and items?

What do you think the biggest challenge of this idea is?

Questions for Upcycling designer and Second-hand Store Clerk:

Do you think that both having second-hand stores and upcycling options can work together?

How would a collaboration work? would it be online? A mixture?

What options do you think should be included in the process of upcycling with the customer?

Do you think showing what upcycling can be through a mix of options would be beneficial for the users? Or would it be better to have a conversation and co-design that way?

Would the app aid the user in providing a better experience from being able to scan the QR code of the clothing pieces to giving options of upcycling and customization?

In your opinion do these methods help build a personal connection between the user and items?

What do you think the biggest challenge of this idea is?

Appendix I

To help understand the different activities that would occur within the service. The stages were created in connection to fashion designer input, customer perspective, and interactions. It showcases the journeys of a user buying an item through an app preference matching notification (see figure 17). The next one shows a user’s journey in choosing to customize an item through upcycling (see figure 18). Lastly, the user journey shows the stages for participating in the monthly raffle (see figure 19).
Buying through notification user journey can be a potential journey for a first-time fast-fashion consumer in the store. As the store presents the possibility for using the app, the user downloads it, then explores the different items and fills in his preferences (color, item type, and size). Once a new item fitting their criteria has arrived, a notification is sent out from the system and leads to them purchasing the item. This gives another perspective to recreational and fashionability motivations through being able to simplify the process.
The user journey follows the steps towards customizing and creating the desired item by the customer. It showcases the backstage of the interactions on the app in relation to communication and approval from the designer before the user needs to pay.
Raffle Entry

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<th>Use-of-visibility</th>
<th>Announcement</th>
<th>Visit store</th>
<th>Filtering</th>
<th>Ticket</th>
<th>Registration</th>
<th>Event</th>
<th>Pick-up info</th>
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<tbody>
<tr>
<td><strong>Front stage</strong></td>
<td>User Actions</td>
<td>App</td>
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<td></td>
<td>User is notified about the new monthly raffle item</td>
<td>Fills in the form to create an account</td>
<td>The user gives the scanned items to the employee</td>
<td>The user receives an ticket with their number</td>
<td>This user fills in the numbers on the app to connect to their account</td>
<td>The user receives information about where to pick it up</td>
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<td><strong>support actions</strong></td>
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<td><strong>service actions</strong></td>
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This journey showcases a user taking part in the monthly raffle. It shows the quality control stage where each approved item equals an entry to the raffle. Adding on, it shows that you can input the number given to connect those numbers to your account. This helps in having a communication channel and trying to avoid unredeemed gifts by users.

**Appendix J**

Hi-fi app interactions video: [https://youtu.be/5VBpHZyD0F4](https://youtu.be/5VBpHZyD0F4)

Hi-fi prototype Link: [https://cloud.protopie.io/p/0e1d9b3b75](https://cloud.protopie.io/p/0e1d9b3b75)

**Appendix K**

Insight from user testing with Fast-fashion consumers:

- Information on what year it was released can be of interest.
- Would 100% shop there since it looks simple and has understandable navigation.
- Enjoy the commitment to lowering emissions through shipping but it might deter some fast fashion users.
- You are going to have to pick the item somewhere, so it might as well be the location of the store.
- Question about the quality of clothing or scarcity it can lead to in the store.
- “If a brand like H&M had a second-hand store I would go”.
- Would be into giving items for a chance to receive raffle entries.
- I would probably mix this type of shopping with fast fashion consumption.
- One participant expressed the desire to create a catchy slogan.

**Appendix L**

Insight from user testing with Second-hand Clerk:

- Makes second-hand look more modern.
- Can attract a big group through customizable and raffle concepts.
- Community designs can help users that are not as creative.
- Information on what year.
- Fully environmentally conscious system but that is not necessarily what the goal of the stores are.
- the quality of items and the possibility to customize might be expensive.
- There is a possibility of prolonging the life of the clothes if something new is created to fit the user's wishes
- “the raffle idea can attract more people to bring in different items”
- What would quality control be like? Can a manual that all employees follow be created?
- Would need some financial backing.
- Could set up a backdrop in the back to take a picture of the items for the app.
- There is already a digital team at most second-hand stores so it is not too expensive.
- Would need inhouse or to hire designers which can be expensive but it would depend on the demand.
- Like the symbolism in the film roll presentation on one of the screens.
- Adds character and stands out.

**Appendix M**

Insight from user testing with sustainable consumers:

- I enjoy that there are different shopping experiences available based on the different desires of the consumers and their motivations.
- Focusing more on the quality and styles it can help highlight different styles and attract a wider reach.
- Options to buy and attract consumers without abandoning non-tech-savvy shoppers.
- Like the idea of second-hand having upcycling options and visualization for the customers. -Quality items being displayed makes it easier to find things you like.
- Quality regulations and alternatives are a big plus.
- Focus on sustainability and reducing emissions, the whole product is conscious.
- How would you get designers to approve or decline a design? Guidelines?
- Attaching a fast fashion brand that works toward the concept of sustainable clothing could be a viable option.
- Accessories and a variety is important.
- Would pay more for quality items.
- Quality is okay at current stores.
- Understand why fast fashion consumers are not attracted to the idea.
- Believes it can help bridge the gap.
- It helps provide different ways to shop and does not impede on the experience of people that do their shopping in person.

Appendix N
Insight from user testing with fast-fashion Clerk:
- There is a potential for this to be run in our store since we can benefit from.
- The Raffle idea can still work with adjustment to payments.
- Mixing physical and virtual experiences is something they’re working with.
- The QR codes are accessible to everyone with a phone.
- The pick-up option being the only option can be detrimental but it would make a business that is focused on sustainability be fully committed.
- Question about the quality of clothing or scarcity it can lead to in the store.
- Overproduction can be highlighted within a fast-fashion brand to try and lower environmental impacts.
Appendix O

Insight from user testing with a Fast fashion and Second-hand consumer:

- “I like the idea that you can order from the store since we have to go pick it up at a store anyways”
- This idea has potential for attracting more customers
- Good filtering and preference matching concept
- Can promote fast fashion consumers to visit a store to try on an item physically
- Can the app also show where the items can be found
- Can inspire to be a hub for designers and creativity

Appendix P

Link: https://cloud.protopie.io/p/1bed7ddf62?touchHint=true&ui=true&scaleToFit=true&cursorType=touch&mockup=true&bgColor=%23F5F5F5&playSpeed=1&playerAppPopup=true