

FASHION UPCYCLING: THE FASHION UPCYCLING: THE CHALLENGES, SUCCESSES,
AND SOLUTIONS FROM A DESIGNER'S PERSPECTIVE

by

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ABSTRACT

FASHION UPCYCLING: THE CHALLENGES, SUCCESSES, AND SOLUTIONS FROM A CANADIAN DESIGNER'S PERSPECTIVE

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Upcycling is a design practice that uses pre-consumer textile waste from apparel manufacturers or post-consumer textile waste derived from disassembled garments to create new fashion, providing a sustainable design solution to divert textile waste from landfills. Although Canadian data is scarce, Weber, Lynes and Young (2016) have determined that textile waste in the United States contributed 11.3 million tonnes to landfills in 2009, a 40% increase since 1999. This comparative case study was designed to include a literature review of past academic research, a demographic questionnaire, and interviews with Canadian fashion companies who practice upcycling. The objective of this study was to examine the challenges faced by companies that upcycle and the strategic solutions they integrated into their business models. The findings from this research study contribute to knowledge regarding strategies for designing, producing, and retailing upcycled fashion in Canada and on a global scale.

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DEDICATION

This MRP is dedicated to my parents Jan Allan, Ed Allan, the late John Dares, and to my husband, Harold Madi. Thank you for support, wisdom, and love.

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CHAPTER ONE: INTRODUCTION

Textile waste is an increasingly complex and wicked problem (Moorhouse & Moorhouse, 2017). The Environmental Protection Agency reported that in 2013, 15.1 million tons of textile waste was generated, of which 12.8 million tons were discarded (Copenhagen Fashion Summit, 2018). While there is a lack of Canadian data concerning textile waste, U.S. textile waste is a growing concern, with 11.3 million tons were deposited into landfills in 2009, representing a 40% increase since 1999 (Weber, Lynes, & Young, 2017). CBC Marketplace, a Canadian media outlet, also featured the problems surrounding textile-waste in North America (“Clothes From Canada,” 2018). The *Pulse of the Fashion Industry 2019 Update* reported that although many in the fashion space have been working toward implementing more sustainable practices, they have not done so at the rate needed to reach the 2030 Sustainable Development Goals, a division of the United Nations (Global Fashion Agenda Boston Consulting Group, & Sustainable Apparel Coalition, 2019). Since this research study was undertaken in 2018, the numbers of town and city councils that have declared a climate emergency have increased (Climate Emergency Declaration, n.d.).

The fashion industry and academic community have been called upon to generate solutions to this problem and to develop recyclable fibres for textiles; however, this may take some time and scalable solutions are not viable yet. Therefore, it is essential to implement interim solutions to the textile-waste problem (Cuc & Tripa, 2017; Han, Tyler, & Apeageyi, 2015). Fashion upcycling is a design strategy that holds promise as a proposed solution to textile waste (Cuc & Tripa, 2017; Han et al., 2017; Paras & Curteza, 2018; Wilson, 2016). Fashion upcycling is a design practice that uses post-consumer or pre-consumer textile waste to create new clothing and accessories, therefore providing textiles with a second life and diverting them

from landfills (Binotto & Payne, 2017; Cuc & Tripa, 2017; Fletcher, 2014; Han et al., 2015; Han et al., 2017; Janigo, Wu, & Delong, 2017; Vadicherla, Saravanan, Muthu Ram, & Suganya, 2017; Wilson 2016). The upcycling redesign could involve minimal modifications such as adding embellishment to more labour-intensive processes that involve the complete deconstruction and reconstruction of a garment (Janigo & Wu, 2015). There is much speculation that is critical of or supports upcycling as a sustainable design solution; however, there is little academic research on this topic and past scholars have suggested further research is needed (Cassidy & Han, 2013; Paras & Curteza, 2018; Wilson, 2016).

This research study investigated the successes and challenges of creating upcycled apparel in Canada, taking into consideration the design and manufacturing processes as well as retailing systems. The inquiry began with a literature review. Following this, Canadian designers working in the realm of upcycling were recruited to complete a demographic survey and participate in semi-structured interviews. The designer's online presence was also analyzed to triangulate the interview findings. The importance of this study is relevant to educating designers, students in postsecondary, fashion and retailing programs as well as entrepreneurs and retailers so that they might better understand and embrace fashion upcycling. An increase in fashion upcycling is a viable solution to accumulating waste as it would divert more textiles from landfills.

Researcher's Worldview

I am a fashion designer, trend forecaster, and professor. My interests lie in the areas of research and problem solving within the field of fashion design. As a resident of the planet, I have been interested in the topic of global warming since seeing Al Gore's documentary, *The Inconvenient Truth* (David, Bender, Burns, & Guggenheim 2006). In 2013, the Rana Plaza

factory collapse in India furthered my interest in social and corporate responsibility and ethics. In spring 2015, while doing trend forecasting research for a paper, I watched *The True Cost* (Ross & Morgan, 2015), and I was once again drawn to focus on the issue of global warming and sustainability. I saw Leonardo DiCaprio's *Before the Flood* documentary (Stevens et al., 2016) documentary when released in 2016, which further cemented my commitment to make a difference as a fashion industry leader. I am interested in finding solutions during the design process to create more sustainable apparel. I attended the Copenhagen Fashion Summit 2018, and one of the seven goals is to achieve a circular economy by 2030. To accomplish circular models much of the discussion among participants focused on technology, collaboration, and new design thinking. The forecaster in me believes this phenomenon of fashion upcycling to be in its early adoption stage, according to Roger's (2003) adoption theory. With time, fashion upcycling may become an acceptable standard source of raw materials.

Purpose of the Study

This research study examined fashion upcycling through the lens of the designer. The purpose of this research study was to better understand the practice of fashion upcycling and its associated challenges, successes, and solutions. Study participants included Canadian fashion companies who have a portion of their company within the Quebec City–Windsor corridor region. This geographical region was selected due to it being the densest population with the most economic growth in Canada since 1972 (Royer, Charbonneau, & Bonn, 1988). This largely populated area would most likely see more textile waste going to landfill. The research question was: What are the successes, challenges, and solutions of creating upcycled apparel or accessories from the designer's perspective within the phases of design, production, and in the retailing?

Significance of the Study

According to the United Nations Fashion Alliance, those who are leaders in the \$2.4 trillion fashion space must work toward meeting the 2030 Sustainable Development Goals to alleviate the environmental impacts (UN Alliance for Sustainable Fashion, n.d.). The amount of textile waste sent to landfills has significantly increased since the beginning of this century (Weber et al., 2017). Much of the textile waste is a result of the output of the fashion space in the design, production, and retail of clothing and accessories. People will continue to need and desire new clothes, so alternative practices are needed to divert textile waste from landfill.

Structure of the Study

In this study, I investigated the challenges, successes, and solutions within fashion upcycling. I have witnessed the increased concern around climate change expressed via media, individuals, and academics indicating a need to research alternative practices within fashion design that are alternatives to the standard practices. This introduction chapter includes an outline of this research study that focuses on the design, production, and retail of upcycled fashion in Canada. This research study is structured into four chapters, following the introduction. Chapter 2 is a literature review that encompasses textile waste within the fashion space, and the practice of upcycling as a solution toward diverting textile waste from landfills. Chapter 3 provides an outline of the research design, including the methodology used, participant recruitment, data collection, data analysis, ethical considerations, validity and research limitations. Chapter 4 provides an analysis of the results and charts that summarize findings according to challenges and solutions within the phases of design, production and retail. Chapter 5 includes the discussion and conclusions with particular focus on the contributions of this research study to education, and the professional practice of fashion design. Chapter 6 provides a conclusion and recommendations for further research are also included. The appendices include the demographic survey and the interview guide.

CHAPTER TWO: LITERATURE REVIEW

The research on textile waste reveals that most is going to landfills, causing adverse environmental impacts (Anguelov, 2016; Black, 2013; Cassidy & Han, 2013; Han et al., 2017; Minney, 2011; Moorhouse & Moorhouse, 2017; Morgan & Birtwistle, 2009; Paras & Curteza, 2018). Scholars suggest that many businesses that operate in the realm of fast fashion, and their insatiable consumers are to blame (Anguelov, 2016; Farrant, Olsen, & Wangel, 2010; Morgan & Birtwistle, 2009; Parker & Maher, 2013). Proposed solutions centre on fibre recycling, but products need to be designed with recycling in mind. The technology is not currently where it needs to be for large-scale implementation (Cassidy & Han 2013; Han et al., 2015; Muthu, 2014, 2017; Tranberg Hansen, 2013; Ulasewicz & Baugh 2013).

Over the past decade, scholars have begun exploring fashion upcycling as a viable solution to diverting textile waste from landfills (Cassidy & Han, 2013; Janigo et al., 2017; Paras & Curteza, 2018; Wilson, 2018). Paras and Curteza (2018) note the importance of upcycling and the lack of comprehensive literature. They critically examined 52 academic papers on the phenomena of upcycling, concluding that upcycling is in its infancy and expensive due to labour intensity (Paras & Curteza, 2018). Findings indicate that upcycling has potential, but government aid is needed, and the authors recommend that future directions include more empirical studies with fashion designers who upcycle (Cassidy & Han, 2013; Janigo et al., 2017; Paras & Curteza, 2018; Wilson, 2018). With this in mind, I explored the successes and challenges encountered by fashion designers engaging in the practice of upcycling. Questions around the role of technology in the success and possibilities of advancing the fashion upcycling practice were included.

Fashion scholars have investigated fashion upcycling in various contexts including post-consumer waste, perceived value, clothing waste, redesign, mass production, standard versus

upcycled fashion processes, marker making, consumer upcycling, pre-consumer textile waste, and textile sourcing. Binotto and Payne (2017) have studied upcycling in terms of increasing the perceived value via brand narrative by performing a case study with a designer working in Paris. Black (2013) conducted multiple case studies to investigate clothing waste and the practice of upcycling or redesign within fashion companies in the U.K and Europe. Cassidy and Han (2013) examined the upcycling process and mass production in the U.K. finding that rigorous research is still required to make this a more common practice.

Dissanayake and Sinha (2015) studied what they referred to as remanufacturing discarded garments or textiles into new designs and the processes required during production by interviewing five U.K. companies. They discussed the differences between standard fashion design and upcycled fashion, noting that inspiration is textile driven as opposed to trend driven at the beginning of the design process (Dissanayake & Sinha, 2015). Some of the challenges during the production processes were discussed, specifically around disassembly, and cutting (Dissanayake & Sinha, 2015).

Han et al. (2017) conducted a study in the U.K. that analyzed one traditional fashion high street brand's processes compared to six fashion brands that upcycle, and all were within the same market category. Their findings illuminate the differences and similarities between the design, production, and retail processes of standard versus upcycled fashion apparel (Han et al., 2017). Their findings indicated differences during the design process were that upcycled designers were textile driven and standard fashion designers were trend and consumer driven (Han et al., 2017). They discussed some of the challenges during the production processes arising from the various available textiles being used (Han et al., 2017). Their interview results

indicated that the designers promoted the brand on social media engaged with community (Han et al., 2017).

To advance the upcycling method, some researchers have examined consumer upcycling practices and the contributions that could be made to the fashion space (Bridgens et al., 2018; Janigo & Wu, 2015; Janigo et al., 2017; Wilson, 2016). A few studies have focused on pre-consumer textile waste as a material source for upcycling practices (Black, 2013; Cassidy & Han, 2013; Ulasewicz & Baugh, 2013). Cuc and Tripa (2018) explored upcycling during the marker making stage as part of the design process to reduce textile waste and increase profits. In Black's 2013, *The Sustainable Fashion Handbook*, Hermès has participated in upcycling as they have created a collection label ("Petit h"), in which they utilize the textile waste leftover from markers used when cutting garments for production as well as flawed goods (Burak, 2013; Keith & Silies, 2015). Muthu (2017) studied the upcycling of adult sized garments as they are transformed into children's wear, ranging from baby to teen.

The way we think about textile sourcing is changing (Black, 2013; O'Mahony, 2013). Black (2013) suggests that the upcycling technique will be adopted by mainstream designers in the future, moving to a "cradle to cradle" model now referred to as circular or closed loop in the fashion. O'Mahony (2013) elaborates on the cradle to cradle model, stating that "industrial and post-consumer waste is set to be more widely acknowledged a important resources rather than merely problems to be solved" (p. 307. Black (2013) and O'Mahony (2013) note the importance of sourcing textiles close to the design and manufacturing locations to reduce the carbon footprint. Textile use and sourcing are key factors in fashion upcycling, solutions in this realm will allow designers to create a new fashion design model that has increased efficiencies.

The literature review revealed that only a small number of the research studies incorporated interviews with fashion design companies who practice upcycling, and the majority of those studies were conducted in the United Kingdom (Dissanayake & Sinha, 2015; Han et al, 2017; Han et al., 2015; Streit & Davies, 2013). Although, two U.K. studies primarily investigated the processes of fashion upcycling and compared these processes to standard fashion design, there is a gap in research pertaining to the Canadian fashion space and upcycling. Specifically, there is a lack of information regarding the successes, challenges, and solutions experienced by Canadians while upcycling fashion apparel and accessories.

CHAPTER THREE: METHODOLOGY

The central aim of this comparative case study was to better understand the successes, challenges, and solutions experienced by Canadians who practice fashion upcycling (Creswell & Poth, 2018; Crouch & Pearce, 2012; Maxwell, 2013; Yin & Campbell, 2018). The specific research question guiding the study was: What are the successes, challenges, and solutions of creating upcycled apparel or accessories from the designer's perspective within the phases of design, production and retailing? This chapter outlines the research methodology adopted for this inquiry, arranged into five sections: (a) research design, (b) data collection, (c) data analysis, (d) validity and research limitations, and (e) ethical considerations.

Research Design

This comparative case study research design used qualitative methods (Creswell & Poth, 2018; Crouch & Pearce, 2012; Maxwell, 2013; Yin & Campbell, 2018). Qualitative methods are well suited to an in-depth look at a phenomenon through a review of the literature and a comparative analysis of a small purposive sample of participants' experiences (Creswell & Poth, 2018; Lunenburg & Irby, 2008). A demographic questionnaire was used to gather descriptive statistics about the participants. The three main themes of design, production, and retail were purposeful and deductive and helped to form the research question. Inductive logic was used when analyzing the results and this data was used to formulate the subthemes.

In order to better understand fashion upcycling, I began with a literature review of academic papers and books on the topic of upcycling. I used Google Scholar, Ryerson University Library & Archives, and Seneca Libraries to search peer-reviewed publications. The criteria set for the peer-reviewed articles was that the literature was published no more than 10 years ago due to the increasingly rapid changes within the fashion industry (Moorhouse & Moorhouse,

2017). The literature searched was dated between 2008 and 2018 using the following primary search terms: upcycled fashion, upcycled clothing, upcycling fashion, upcycling in fashion design, redesign, sustainable fashion, and circular economy. With each of the primary search terms, I used the following secondary search terms: clothing, fashion, design, and textiles. This yielded articles most relevant to upcycling from a fashion designer's perspective.

The literature review enhanced understanding of peer-reviewed research and aided in the development of the research question and methodological approach. Paras and Curteza (2018) recommend that future research on upcycling take place in the form of empirical inquiry with fashion businesses. Thus, a demographic questionnaire and open-ended interviews with Canadian fashion designers who practice fashion upcycling were completed. The first section of the demographic survey requested participants' preferred email contact, company name and address. The purpose of collecting this personal and identifiable data was to confirm that the location of the business was within the defined geographical area. The email address was required to contact the participant to arrange interview at a time and date that suited them. The demographic survey also inquired about general apparel design experience and specific design experience with upcycled apparel and accessories and lastly, how many employees worked in the company and on the design team.

The primary research strategy included open-ended interviews with Canadian fashion designers who have been producing wholly or partially upcycled apparel or accessory collections that they sold under their fashion design label using a semi-structured interview guide (Merriam, 1998). Inquiry focused on all stages of the upcycling process, from inspiration research to the sourcing of materials, through to the sale of the garment. The first section of the interview guide focused on general questions about the participants' initial interest in fashion, their training, the

catalyst for launching an upcycled collection, the history of their brand, and their brand's philosophy. The second section concentrated on design, sourcing, and production, with questions about their design and manufacturing processes, topics included sourcing, trend forecasting, sorting, laundering, time, techniques, fibre content, labelling, care instructions, government guidelines, deterrents, and technology. The third and final section focused on their retailing operations, unpacking information about the brand's narrative, buyer's response, e-commerce, bricks and mortar, consumer response, and the brand's competitors. The final question asks participants: In reflection, what is the biggest success and the biggest challenge when creating an upcycled fashion? Each participant preferred to provide their own photos, therefore I engaged in online research to source the images that were discussed during the interview and when I made my final selections, I emailed each participant to seek approval to use the image, to request a high resolution copy of the image and to confirm the name of the photographer so that photo credits may be included.

To increase reliability and validity, data triangulation, comparisons, member checking, purposive sampling, and intercoder reliability strategies were used (Creswell & Platho, 2018). Validity was developed through intercoder reliability when the transcripts were reviewed by myself, and by my supervisor, Dr. Sandra Tullio-Pow, to confirm the themes and discuss variances. The findings of the demographic questionnaires, the interviews, and the photos (both those researched online and those provided by the designer) were compared to determine where the data overlapped for data triangulation. The photos confirmed what the designers were talking about. Reflexivity was considered during the creation of interview guide to avoid leading questions (Maxwell, 2013). Each participant was sent the transcribed interview to verify they said what they meant for member checking (Maxwell, 2013). Disadvantages of the methods

listed is that all of the collected data is self-reported and therefore may be biased. Triangulation of these methods lends to less risk in the qualitative data analysis (Maxwell, 2013).

The research limitations of this study were that it was not possible to visit all of the facilities each design company conducts its business due to its vast geographical locations. The global lens provided by the participants' vast geographic locations outweighs the disadvantage of visits to each of the facilities. The research limitations are the small sample size of this study.

Data Collection

The following section outlines data collection and describes the research setting, sample type, recruitment and selection of participants, a synopsis of data sources and a summary of the themes focused on during the interviews (Lunenburg & Irby, 2008). Prior to beginning the study, the researcher completed the Tri-Council Policy Statement course on Research Ethics, this aided preparation and submission of an application to obtain approval from the Ryerson University Research Ethics Board (REB) to recruit human participants.

Recruitment and Selection

Fashion apparel and/or accessory designers who have all or a portion of their business located in the Quebec City–Windsor corridor were recruited for this study. The sample type was purposive and non-random, as it was necessary to recruit Canadian participants who had experience within the fashion upcycling category (Maxwell, 2013). A criterion sampling method of recruitment was used to select prospective participants. The inclusion criteria required the participants have a minimum 10 years of experience in some facet of the textile industry at any phase in the life of textiles, with a minimum 2 years of experience designing, manufacturing, and retailing upcycled fashion apparel or accessories under their own label. The fashion upcycling practice must have used pre-consumer or post-consumer textile waste. Pre-consumer textile

waste is created during the production of the product, and post-consumer textile waste includes items at the end-of-consumer. The participants were also required to have an online presence for their upcycling fashion brand, whether it be a website, Etsy, Instagram, or another form of social media.

The sample included purposive selection of participants who are very knowledgeable in the fashion space and specifically about the topics of pre-consumer textile-waste, post-consumer textile-waste, sustainability, and upcycling. Each of the participant's interview ranged from 40 minutes up to 1 hour and a half, depending on the length of the participant responses. The rich descriptions provided by the participant's provided reliable qualitative data (Maxwell, 2013).

To search for companies that fulfilled the criteria, snowball sampling was employed along with searches in online magazines, online newspapers, and upcycled fashion brand websites. Social media applications LinkedIn and Instagram were also searched using #upcycledfashion, #upcycling, #upcycled clothing, #torontofashion, #montreal-fashion, and #canadian-fashion to locate fashion designers with the criteria as mentioned earlier.

The recruitment process began by sending an email message to 12 prospective companies using the contact information listed on the company website or to the using DM (Direct Message) to the company's Instagram account (see Figure 1). In the recruitment message, the focus of the research was explained, and prospective participants were asked to agree to an interview that would take one and a half hours and complete a short fifteen-minute demographic survey. The recruitment letter offered a \$25 gift card from a coffee house of their choice as a small token of appreciation for participating. Those interested in participating in the study contacted the researcher directly via mail. Those individuals who responded were emailed a welcome letter and consent form, allowing time for review in order to pose questions to the

researcher before consenting to participate. Prior to commencing the interview, the researcher again reviewed the consent form to allow time for further clarification. Participants were reminded that they would receive a copy of their interview transcript via email to verify the information and their responses were required within seven days of receipt. As well, participants were advised that they could withdraw from the study at any point during the interview and any of the data collected up until the time of withdrawal would be deleted.

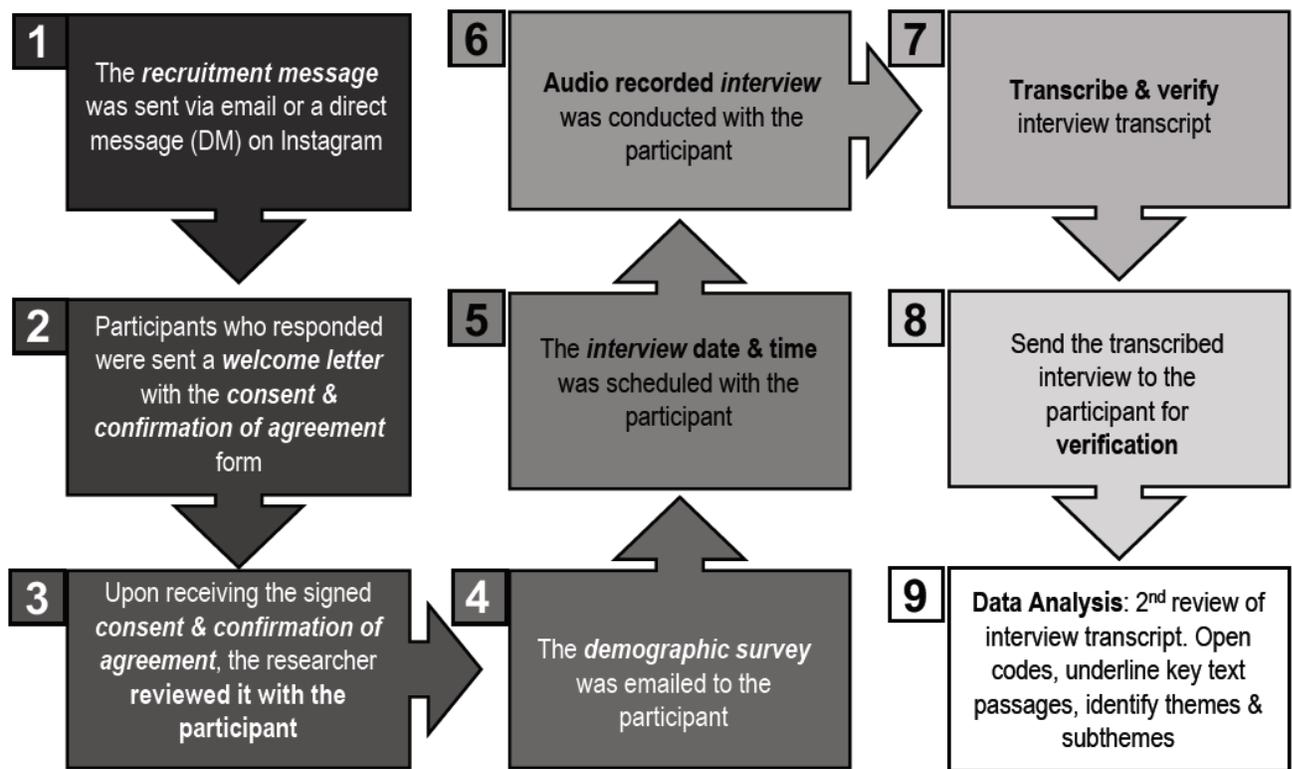


Figure 1. Data collection procedures chart of the multiple phases and their order for this research study.

Limitations encompass designers who do not practice fashion apparel upcycling or fashion accessory upcycling. Designers who upcycle fashion apparel or fashion accessories working in other parts of Canada were not included in this study.

Multiple data sources were used to triangulate results including a demographic questionnaire, transcribed interviews, the brand's online presence, and the photos provided by the designer of each brand. Data collection began with a short demographic survey to provide descriptive statistics of the sample. The demographic survey form was emailed to each participant and returned to the researcher via email. The interview date and time were scheduled with each designer during a time that was convenient for them. Over three hundred minutes of interview audio was transcribed in preparation for the thematic analysis. Photos for the research study were provided by the designer.

Data Analysis

Data collection and analysis were triangulated through multiple sources, the brand's online presence, demographic questionnaires, interviews that were transcribed, memos, and supplementary materials provided by the designer (see Figure 2). Following each participant's interview, a memo was written, and the audio recording was uploaded to Rev.com for transcription. Upon receiving the transcribed audio, the researcher listened to the audio recording to verify accuracy. Once each transcript was verified by the researcher, it was sent to each participant for verification.

The transcribed interviews were examined and analyzed using thematic analysis with open coding that was developed based on keywords or phrases (Corbin & Strauss, 1990; Maxwell, 2013). A content analysis was done by creating a summary chart for each participant. Each participant's content analysis was done by listing the topics discussed and the frequency of the topic during the interview was documented. During the thematic analysis concepts, themes and subthemes were identified and analyzed for similarities and differences using the constant comparative method (Corbin & Strauss, 1990; Kumar, 2013; Martin & Harrington, 2012).

Phase	Method	Qualitative/ Quantitative	Data Source	Analyze	Guiding Questions
1	Demographic Questionnaire	Quantitative	Data Form	<ul style="list-style-type: none"> • Fixed Response • Categories • Numbers 	<ul style="list-style-type: none"> • Location • Years designing • Years designing upcycled apparel • Size of team/company
2	Open-Ended Interviews	Qualitative	Transcripts	<ul style="list-style-type: none"> • Word Count • Phrases • Themes • Sub-themes • Categories • Sub-categories • Quotes • Compare • Contrast • Interpretation • Significance 	<ul style="list-style-type: none"> • What are the successes and challenges of creating upcycled apparel or accessories from the designer's perspective, and specific to the phases of design, production and retail?
3	Photography Research	Qualitative	Photographs	<ul style="list-style-type: none"> • The upcycled garments or upcycled accessories in photos that were provided, posted on-line, and/or published 	<ul style="list-style-type: none"> • What types of garments or accessories are upcycled? • What types of textiles have been used in the upcycled garment or accessories?

Figure 2. Data analysis—Summary of methods.

Each of the three main themes—titled Design, Production and Retail—were assigned a colour and key text was highlighted by colour accordingly. Subthemes were then identified, and a word index chart was created with three columns, the first titled Design, the second titled Production, and the third titled Retail. To ensure clarity a glossary of terms was created based on the language used by the participants as a single word may have multiple meanings depending on who in the fashion space is speaking. A quote index chart was created in Excel with six tabs, one for each of the three themes with a subtheme tab assigned to each category, one for successes and a second for challenges and solutions. Contrast and comparison were used to determine the main challenges, solutions, and successes within each theme.

An in-depth thematic analysis was performed on the Index of Themes Chart and the Quote Index Chart that were created using the participants' feedback provided an overview of the challenges, successes, and solutions. During the thematic analysis similarities and differences were noted. A content analysis was performed by documenting the frequency of words or phrases and then looking for similarities or differences amongst the participants. Additionally, the analysis provided the general information required to create a brand comparison chart that was used to develop a descriptive summary of each company's history. To build on past fashion upcycling research the following descriptors were included: the city the company was based in, the year the brand was established, the structure of the company, the market, the product type, the type of textile-waste utilized, where the product was manufactured, where the product was sold, collaborations, community engagement, and the target customer (Dissanayake & Sinha, 2015; Han et al., 2017). A chart was created to illustrate the participant's experience in textiles and fashion upcycling and a map was created to illustrate where the participants' conducted the various phases of their fashion upcycling business from sourcing textile-waste to retailing.

Ethical Considerations

The sample type, recruitment and selection of participants were described in the Data Collection section. The participants were provided with the choice to be assigned a pseudonym for confidentiality, or if they preferred to have their real name and company name published, they were to indicate this on the signatory page of the consent form. If any of the participants chose to be assigned a pseudonym, then all participants would have been assigned a pseudonym. Taking into consideration the significance of speaking with entrepreneurs on the topic of their business practices, it was important at the beginning of each interview when the consent forms were reviewed, to discuss the company name and interviewee name being used. Additionally, member checking was used as each participant was sent the transcribed interview for

verification. Although, all participants agreed to be named, and this was done in the brand overview section, they were also assigned a pseudonym of Brand A through Brand E for the purposes of clarity throughout the remainder of the study. The electronic data will be stored until September 17, 2019, upon completion of the research paper and then deleted. The hard copies of all documents will be stored in the office of my supervisor, Dr. Sandra Tullio-Pow for 6 months following the completion of the paper and then all documents will be shredded.

The research data was managed digitally on the Google Drive since it is encrypted and minimizes the data being accessed by unauthorized individuals. Within the researcher's Ryerson Google Drive, a folder labelled MRP was created that contained a numbered folder for each participant, a Quote Chart and an Index of Themes Chart. Within each participant's numbered folder, the following electronic data was stored: the consent forms, photos provided by the participant, a theme chart, the MP4 audio files of the interviews and the transcribed interviews in the form of a Word document. Hard copies of the participant's company name, address, and email, along with the signed consent forms and demographic survey were stored in a locked filing cabinet for 6 months. Physical folders were created for each participant and numbered in the same manner as the digital folders. The physical folders included 11 x 17-inch hard copies of the transcribed interviews that had been highlighted by theme with notes on the right side and a themes chart. A copy of these documents was provided to the researcher's supervisor so the data could be reviewed for intercoder reliability. These documents were destroyed upon completion of the research paper.

This methodology chapter reviewed the methods undertaken within this qualitative study. The following chapter includes a brand overview for each of the participants' companies to provide context the results.

CHAPTER FOUR: RESULTS

The findings of the interviews and the photos provided by the participants are presented and analyzed in the following three sections. First, an overview of each brand is presented to provide context for the results. The following section provides the findings of the qualitative study using thematic coding, a content analysis, and a comparative analysis presented within the three main themes: design, production, and retail. The thematic coding was based on the research question and interview guide's three main themes of design, production and retail. The interview data provided the subthemes developed from the coding and the content analysis. The thematic coding was compared for similarities and differences.

The participants (n=5) produced wholly or partially upcycled apparel or accessory collections with all or some of the phases of their business within the Quebec City–Windsor corridor, a geographic region in Canada. A map was created to illustrate each brand's geographic locations where the main activities, including design, manufacturing and retail, took place (see Figure 3). A chart with the main findings of each participant's experience with textiles and fashion upcycling was provided. Each of the five fashion designers had had a minimum 10 years of experience with textiles and a minimum of 2 years' experience producing an upcycled fashion collection, sold at retail (see Figure 4). The knowledge the fashion designers have gained through their experience meant they were able to provide rich perspectives on the state of the upcycling practice in the fashion industry today. Four of the five participants were interviewed over the phone due to scheduling constraints. Interviews took place in January and February 2019.

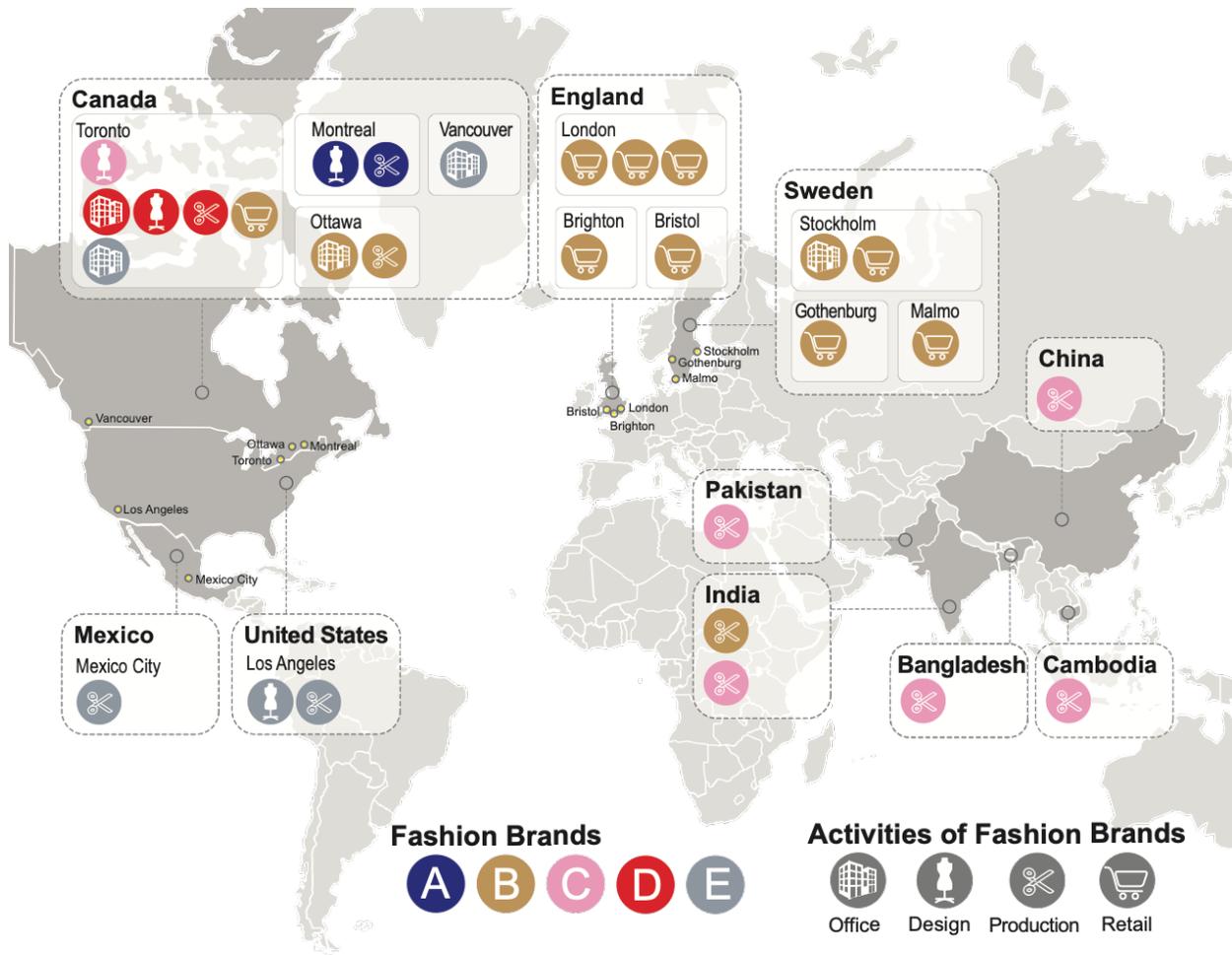


Figure 3. Geographic locations of each brand’s key activities within fashion upcycling.

To contextualize the findings, a description of each of the brand’s history follows. Additionally, these in-depth brand descriptions profile a variety of companies that upcycle fashion. This is needed because upcycled fashion is a new phenomenon and the findings from the literature review indicate that the term upcycling has been defined differently by various researchers.

During the research study I analyzed the participants’ online presence, including their website, social media, at conferences, numerous global publications, and videos. The findings indicated the participants have been engaged in sharing their brand history and some of their practices in

some or all of these forums. Each brand and participant named in the background information section that provides the descriptive statistics section was assigned and identified with a letter A through to letter E for clarity of the findings presented throughout this research study.

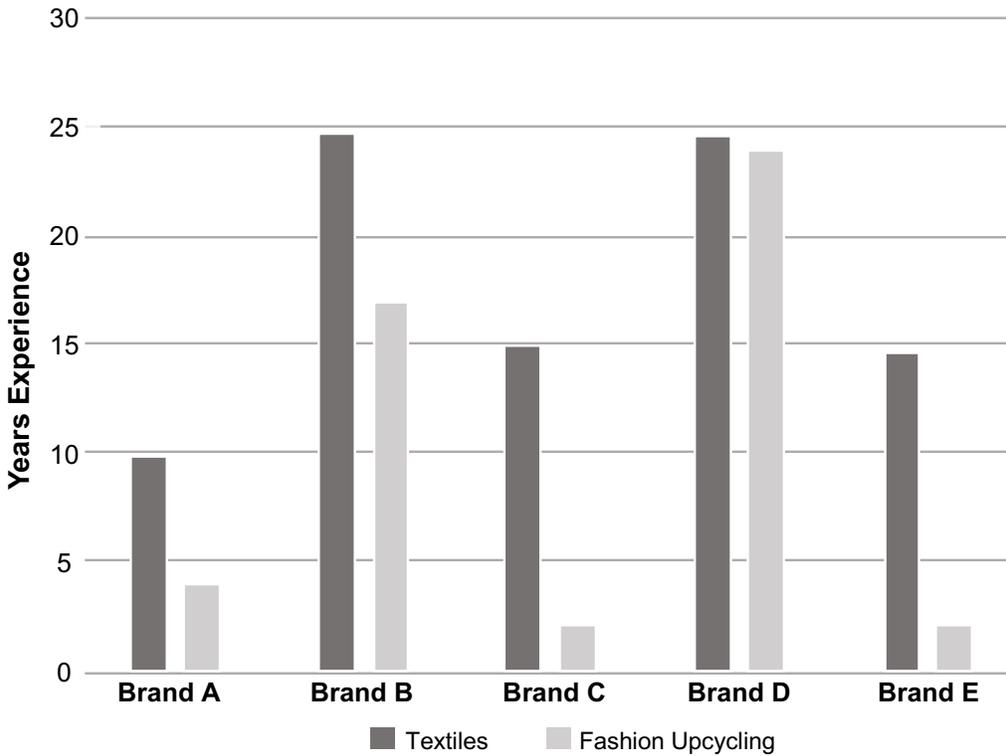


Figure 4. Main findings of participants' experience with textiles and fashion upcycling.

Background Information

The following section provides descriptive statistics of the participating brands. The type of information provided was adapted from past research studies on the topic of fashion upcycling that also provided overviews of the brands (Dissanayake & Sinha, 2015; Han et al., 2017). The brands listed are ordered based as sequenced in the interview schedule. Each of the five participants' brands vary in market, product, what they are known for, and whether they utilize post-consumer or pre-consumer textiles to create their fashion upcycled collections (see Figure 5).

Fashion Brand	Market	Product	Known For	Textiles Sourced
A			democratic denim	
B			mass exclusivity	
C			modern basics	
D			contemporary fashion	
E			luxury denim	

Legend

					
Apparel	Accessories	Footware	Pre-consumer	Post-consumer	Deadstock

Figure 5. Brand overview.

Brand A

This independent, Montreal-based denim focused, designer brand, *Kinsu*, is sold by over 20 retailers, including the Canadian department store Simon’s and the Montreal Museum of Fine Arts. The founder, Ariane Brunet-Juteau, was interviewed for this research study, has been designing apparel for 10 years and has been practising the upcycling of fashionable accessories and apparel for four years. It was while working for a fast-fashion company that the designer became aware of the “power” that they held in the decisions that they made daily. The designer stated that she realized the impacts of her choices, for instance, using cotton versus polyester, a plastic button versus a wood button or faux fur versus real fur for large-scale fast fashion manufacturing could significantly impact the environment. The designer practices fashion upcycling to create women’s apparel and accessories using post-consumer textile waste sourced

from a local large-scale textile recovery and sorting centre, where they also serve as a board member. At the time of the interview, the designer was planning the launch of a one-day swap event at a private college, in order to expose teenagers to sustainability.

During the interview in the designer's live/work studio, a selection of upcycled denim mittens in shades of blue and black had been arranged on a table (see Figure 6). Initially, the mittens contrast leather palms and fingertips were made with vintage leather skins from used motorcycle jackets. Regretfully, most wearers of these motorcycle jackets had smoked leaving a scent that was virtually impossible to remove, therefore new leather was sourced for the mittens. The designer also discussed the new, faux fur material for the interior of the mittens and explained that sometimes new materials were combined with those being upcycled to produce functional and saleable products. Decorative surface techniques had been incorporated into past collections. For example, Shibori dyed denim was created as a collaboration with two other local designers. The Shibori technique is an ancient Japanese form of resist dyeing where the textile is manipulated by clamping, twisting, folding or crumpling prior to the textile being dyed similar to tie-dye (Voris, 1999). The designer explained why denim was chosen as the main textile for the brand:

And I have always been a fan of denim, because denim is such a fascinating material. It is the most democratic material in the world, [worn by] women of all ages, men of all ages, it transcends culture, religion, ages, sex. Everybody wears denim. (Brand A)



Figure 6. Brand A's iconic upcycled denim combined with new leather mittens.

Photo: Bruno Berthelet. KinsuAtelier (2019). Retrieved from

<https://www.etsy.com/ca/shop/KinsuAtelier?ref=seller-platform-mcnav>

The designer had been working on solutions in terms of cost associated with upcycling given all of the extra steps involved in the manufacturing process. She indicated that her company is committed to producing fashion products that are economically accessible. The company's business model included the sale of downloadable patterns for selected apparel styles and accessories within the collection. The designer considers fast-fashion retailers to be the brand's competition and noted the challenges of competing with fast-fashion's low-price points. In order to be more competitive, the manufacturing of the mitten linings (cutting and sewing) was outsourced to a factory in China. At the time of the interview, the designer stated that the brand's customer base was primarily on Etsy, an e-commerce website that hosts independent artisanal and vintage brands. They have also sold at small local markets. Their target customer is an individual who is looking for unique products.

Brand B

This brand, Beyond Retro, launched in 2002, is a division of the large-scale Ottawa-based post-consumer used clothing trading company Bank & Vogue that was established in 1992 (see Figure 7). The *Beyond Retro* brand was initially launched as a trend-driven vintage clothing retailer. They began to practice fashion upcycling in 2011 with the launch of their Beyond Retro Label (see Figure 8). At the time of this research study, the brand had 120 employees, with the expectation that the number will increase. The parent company Bank & Vogue (2019) has been engaged with more than 250 charities and private collectors throughout North America and exports fifty containers of post-consumer clothing every week. The Canadian co-founder and creative director for the label, Steven Bethell, and their team have visited more than 30 countries globally to source post-consumer textile-waste (Bethell, 2019). The co-founder, who was interviewed for this study, is considered to be a thought leader and a pioneer on the topic of post-

consumer textile-waste and has shared their knowledge at various conferences. The co-founder and two more company employees were participants in the Ellen MacArthur Foundation's report titled *A New Textile Economy: Redesigning Fashion's Future 2017* (Ellen MacArthur Foundation, 2017).

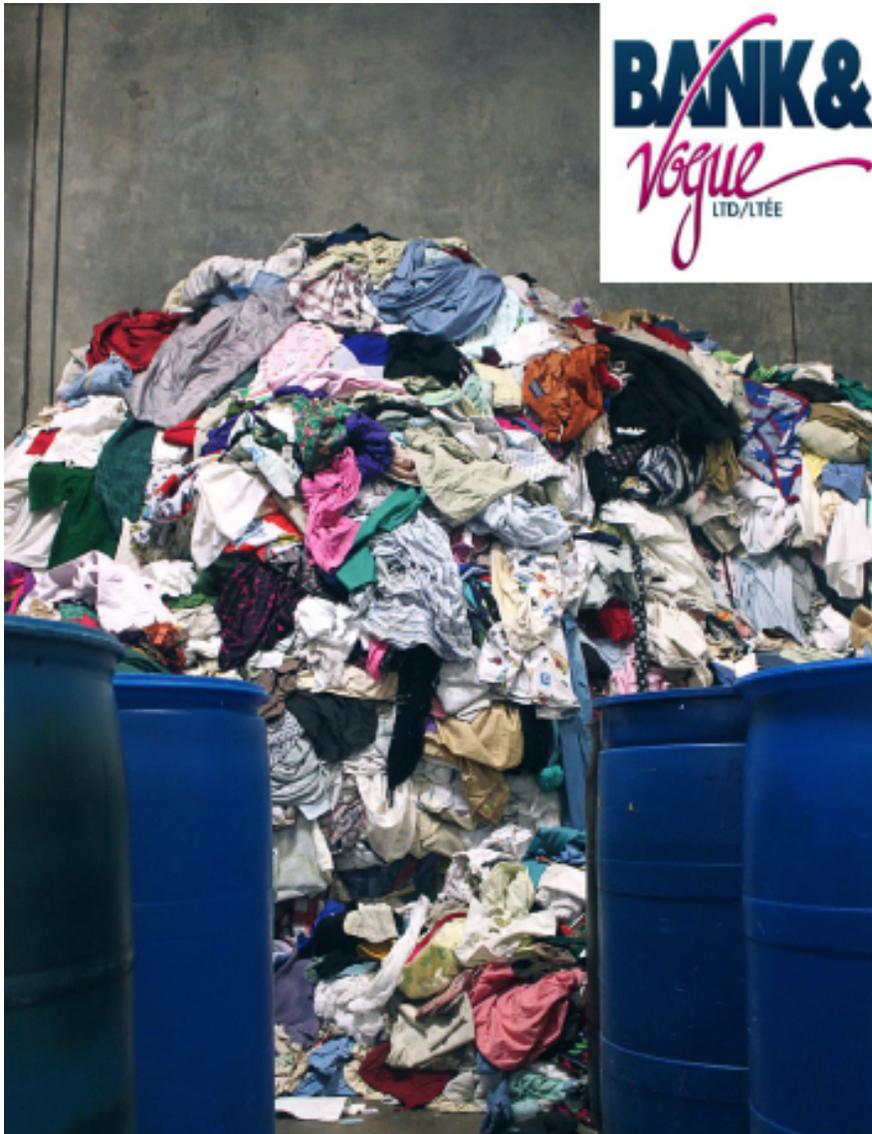


Figure 7. Brand B's Bank & Vogue, an Ottawa based large-scale global wholesaler of post-consumer textiles is the parent company of the Beyond Retro Label. Photo: Beyond Retro (2019). Retrieved from <https://www.beyondretro.com/pages/about-us>.



Figure 8. Brand B's Beyond Retro Label A/W 18/19 upcycled fashion collection. Photo: Beyond Retro (2019). <https://www.beyondretro.com>

At the beginning of the interview Bethel described the mission statement for their founding company: “Our mission originally was innovative and relevant solutions to the crisis of stuff.” The co-founder discussed the catalyst for creating their fashion upcycled label was identifying a gap in the marketplace, namely their consumers’ trend-driven desires that vintage clothing and accessories in their original form could simply not provide as described below:

And often, our mission in the vintage business is to interpret modern trends as best as we can through use. But at times there are trends that you can’t interpret because of the shape, cut, style. You can’t interpret through trends, but maybe you can reinterpret or remanufacture a garment so that it can reflect a modern trend and that’s why we got into upcycling. (Brand B)

The co-founder mentioned they have been referred to as mass exclusivity, that

he describes as a category of apparel and accessories where the style is the same, but the textile may vary in colour, shade and wear. They also discussed the challenges of upcycling for mass versus one-offs:

The heavy lifting is trying to take a thousand and make a rule of one. Then make one item out of it. But from a retail point of view, it makes an exciting story because if you then now look at my denim snap front skirt, there's fifty of them on a rail with every one of them being different. (Brand B)

The company's production cycle is vertically integrated and includes a trend forecasting team of four designers based in their head office in the U.K. This department identifies the direction of the collection, based on research two seasons in advance. Vintage garments are selected during in-house fabric fairs to create unique redesigned apparel and accessories. During the design process, a production manager works alongside the trend and design team to advise them based on the company's analytics and business intelligence, collaborating to combine art and commerce.

In addition to the Ottawa based post-consumer waste sorting company, the brand also owns a large global remanufacturing and production facility in India, allowing for traceability along the supply chain. In addition, the company owns a vintage sorting facility that is located across the road from the manufacturing facility, allowing them to select the items they require for production and return unused garments to avoid waste. The company contributes to the community they are remanufacturing their upcycled collection in by providing aid to the Karuna Girls Orphanage (Bank & Vogue, 2019). The women's and men's wear Beyond Retro label are sold via the brands e-commerce site, Urban Outfitters, Top Shop, and at its nine eponymous shops in the U.K. and Sweden (Beyond Retro, 2019).

Brand C

Launched in 2016, Nudnik is a Toronto-based, modern-basics, gender-neutral upcycled children's wear collection that has received accolades from fashion icon Jeanne Beker. The brand has been featured in numerous publications, including *Blog TO*, *Today's Parent*, *The Financial Post*, *Flare*, *The Huffington Post*, *Toronto Life*, and *WGSN* (Nudnik, 2019). In 2018, the brand's history as told by the two founders, who are twin sisters, was the feature of a *Globe and Mail X Volvo* series video titled "Exceptional Canadians" (2018). The brand is known for its colourful t-shirts made from pre-consumer textile waste (see Figure 9). The co-founder Lindsay Lorusso had worked more than 15 years at her father's waste management company, one of the largest in Canada. She mentioned that on a global scale, the category that was most difficult to recycle was textiles, second only to plastics. Lorusso having worked in all facets of the waste management company, discussed her insights regarding materials waste and how that ignited a passion for investigating ways to improve upon problems related to post-consumer textile waste. She discussed how her experience highlighted their concerns about waste:

So, we spent a collective 20 years working for our father's waste management company. And some of the things that we noticed that were having a really tough time recycling globally was ... plastics, but then secondary was textiles. So, we just started, I mean the idea for Nudnik was conceived about, probably 6 years ago ... and we were just starting to really get a lot of the information mainstream about how bad textile waste and pollution was. And from the waste industry we really discovered that there's really not a lot of local or global solutions to handle it. (Brand C)

Initially, the founders created the collection using various types of post-consumer textile waste, mostly adult sized t-shirts and sweatshirts sourced from rag houses. They also worked with local

designers utilizing their post-production excess yardage (end-of-roll textiles) as well as local print shops with misprinted yardage that would be considered textile-waste. Regretfully, none of these sources provided the volume required to scale the number of units produced to achieve an economically viable upcycled fashion business model. The co-founder stated they have since begun sourcing pre-consumer textile-waste that is available in abundance from major apparel manufacturers overseas in Bangladesh, India, Pakistan, Cambodia, and China to overcome the challenges associated with volume. They work with a key coordinator at one of the factories where they manufacture their collection. The collection is primarily available online along with numerous pop-up shops and a few Toronto children's wear boutiques with plans for more trade shows to build the wholesale business.

The co-founder refers to the brand as a think tank that is working toward making a significant impact on the textile-waste problem by being a real example of a scalable upcycled business model. In 2017 and 2018, this brand was accepted into two Canadian business accelerator programs, further validating their business idea of pre-consumer textile waste fashion upcycling.



Figure 9. Brand C’s iconic children’s unisex “Disruptor” Tee created with pre-consumer organic cotton, threads and trims. Nudnik (2019). Retrieved from <https://littlenudniks.com>

Brand D

The founder and creative director, Julia Grieve, of the Toronto-based brand Preloved is known as a fashion upcycling pioneer in Canada. The brand was established in 1995 and is known as a contemporary women’s collection (see Figure 10). This women’s wear fashion upcycled brand was a nominee for The H&M Sustainability Award at the 2019 Canadian Arts & Fashion Awards (CAFA). The founder, who was interviewed for this research study, has been a board member and host for *Buy Design*, an event that raised funds for the charitable organization Windfall Clothing Service that provides new post-retail clothing to Canadian families at no cost.



Figure 10. Brand D's solution for red textile-waste are its iconic heart appliques.

Preloved (n.d.). Retrieved from <https://getpreloved.com/>

She is a regular expert guest for fashion segments on *Cityline*, a Canadian talk show and they have their own YouTube channel, The Life, where they share DIY and sustainable projects that repurpose vintage clothing.¹

Before the launch of the brand, the founder was a full-time model, working for designer brands like Chanel and traveling the world. She discussed the knowledge she gained in the luxury designer space, for instance the importance of fit of a luxury garment, and how that felt to wear. She has applied the same attention to detail, in regards to fit, in her collection, She loved wearing vintage clothing and would modify the post-consumer apparel to make it modern and extremely fashionable. Multiple requests to purchase the upcycled clothing the founder was wearing was the catalyst to open the first Toronto boutique with a studio workspace in the back. The founder discussed the importance of creating modern and fashionable upcycled apparel:

I just always had a passion for vintage clothing, but I felt that the problem was when you wear vintage it can balance into sort of costumesque. If you are not going to modernize it slightly, waistlines are higher or lower or a slit should be slightly different, or hemlines are different. You had to just slightly tweak the vintage clothing to make it modern and that is what I would do, and I loved it, and that is what sort of started the whole idea of it. Obviously taking something old and make it new again is nothing revolutionary, that's the oldest trick in the book, but to be able to make it extremely fashionable and have your line carried in boutiques like Holt Renfrew and Anthropology and all those kinds of places. That's the art behind it I find. (Brand D)

In 2014, the brand moved their design studio, retail shop, photography studio, e-commerce, and social media department into the local factory they had been manufacturing in

¹ See: <https://www.youtube.com/channel/UCm0kJUM3HLUzHzTdw-87umQ>

for many years. The brand's team sources vintage clothing made mostly from jersey or sweater knit garments. The founder oversees the creative direction, working with the brand's head designer to develop and edit the collection. The factory owner is an integral part of the design meetings to guide for efficiencies in the manufacturing process of this vertical operation.

Collaborations for collections with large retailers have included Anthropologie, Roots, Indigo, Holt Renfrew, Pink Tartan, The Bay, and Sporting Life. The brand has been featured in numerous international publications and is worn by a number of models, musicians, and actors including Angela Lindvall, Daria Werbowy, Anne Hathaway, Hilary Duff, Julia Roberts, Kate Hudson, and Kirsten Dunst (Preloved, n.d.). The brand's target customer aligns with the contemporary womenswear market.

Brand E

This luxury fashion upcycled denim company's three co-founders include the brand manager/in house stylist, who is based in Toronto, the creative director/designer, who is based in Los Angeles, and the business director in Vancouver. The creative director and designer, Adam Taubenfligel, who was interviewed for this study, had acquired his fashion knowledge while working in various denim factories located in Italy before launching the Triarchy label with his two co-founders. The founder and creative director discussed their concern for the environment in respect to water consumption and toxic dyes going into the water stream when it comes to denim. They write blogs, create and post videos and speak at conferences on the subject of creating sustainable fashion. The brand received The Fashion Impact Award and, The H&M Sustainability Award in 2018 at the Canadian Arts & Fashion Awards (CAFA). The brand has received accolades from numerous publications including *WWD (Women's Wear Daily)*, *Denimology*, *Elle Canada*, *Fashion Magazine*, and *The Huffington Post*.

Triarchy was initially launched in 2011, using the standard fashion design model. The denim styles were inspired by original vintage denim garments that were sourced at various suppliers. The designer described one of their sourcing visits that inspired them to use the vintage denim as the fabric for the collection:

Well the upcycling came by total fluke. It's quite an arduous process trying to duplicate vintage washes [on denim clothing]. I mean it's something we were doing [in our ready-to-wear collection] so I would spend a lot of time in facilities in LA that have vintage denim [for inspiration]. And so, it was just during one of those trips we were pulling pieces and you know saying how this is all exactly what we want, and then, it was like wait a minute, why don't we just?... And then we're looking at these mountains of denim and just decided what if we just started using this fabric? (Brand E)

The first upcycled denim jacket prototype produced by the company was designed so successfully, that when they went back to the supplier and the brand's manager and in house stylist was wearing the jacket, they were approached by the owner of a denim factory, who has since become their partner in the company (see Figure 11).

In 2016, the founders relaunched their company as a sustainable denim brand, moving production to a factory in Mexico City, where eighty-five percent of the water used is recycled (Triarchy, 2019). The sustainable luxury upcycled fashion collection is under a separate label, *Triarchy / Atelier Denim*. The designer works closely with the production manager at the Los Angeles factory, whom they consider to be an integral part of the selection and manufacturing process. The brand is known for their authentic vintage look and therefore, during the selection process, the designer and the production manager handpick only 100% cotton American made denim to achieve the desired garment aesthetic. The denim is deconstructed, redesigned, and

reconstructed and sometimes embellished to create original pieces. Swarovski crystals are the only material the brand uses to add to the perceived value of their clothing. The collection has been exhibited to buyers at the Cabana & Capsule Trade Show in New York City. The brand has been retailed at Holt Renfrew, pop-ups, and on the company's website.



Figure 11. Brand D's unisex upcycled denim fringed jacket. Photo: Alberto Newton.

Triarchy (2019). Retrieved from <https://triarchy.com/collections/atelier-denim>

This background section provided a brand overview by reviewed the varied practices that provided multiple experiences from each brand. The successes, challenges, and solutions experienced by the participants will be discussed in the next section, Interview Findings.

Interview Findings

The research interviews revealed that only Brand D operated their fashion upcycling business entirely in Canada. The four other Canadian designers who were interviewed engaged at some point in time in fashion upcycling on a global scale with some phases of the design, production, and retailing processes taking place outside of Canada. Interviews with those Canadian fashion designers who operated their businesses globally during the design and production phases were relevant to provide insight into the current state of the fashion upcycling practice. All of the brand sell online and therefore it is likely that they are all selling product globally. This section of the analysis is divided into three main themes titled Design, Manufacturing, and Retail that include multiple subthemes within each. In each subtheme, successes, challenges, and solutions that were experienced by the participants are discussed.

Design: Fashion First

Four of the five participants discussed the importance of creating a collection that prioritized fashion first, in that they considered aesthetics to engage consumers. Brand C designs children's clothing and they focus on colourful t-shirts to appeal to a child's eye. They did indicate that they do research trends and that colour palettes are based on trending colours. The words the participants used to describe the type of product they strived to create and the type of product that was successful with their consumers included "fashion, trend-driven, innovative, unique, cool, and surprising." Trend research was deemed critical for the success of the collection, as stated by the participants of the two larger companies, Brand B and Brand D, who worked with a forecasting team that determined key silhouettes, textiles, colours, and print trends.

The co-founder and creative director of Brand B mentioned the word *trend* a total of 30 times during the interview, and they emphasized the importance of trend-driven product and fashion first for the collection. They have created bags sold at retailers such as Top Shop and Urban Outfitters, citing that the consumers respond most to on-trend product. The co-founder and creative director of Brand B discussed the trend and design department and their role within the upcycling design process:

We have a trend department that chooses the trends two seasons ahead. but chooses the trends from both street style and watching the catwalks. We reflect those trends in our vintage curated pick. But, on top of that, we then identify the trends that we're missing or can't find enough of. Or trends that we feel would be really fun to be able to interpret through the remanufacturing, the upcycling. So, we have a trends department. There's two people that do [source] trends continually. And then there's a team of four that are designers. They come from a true design background, from the London schools. Some have industry experience. Some are straight out of school and one of them is straight from our retail shop floor. And then on top of that, we have a production manager who sits beside them and guides them, against the analytics of, what the business intelligence is saying, in terms of what we need, what is trending in terms of, so there's the arts component, which is the trends. But we also need the business intelligence, [the logistics] of look how many pants do we need, how many shirts do we need, how many skirts do we need. (Brand B).

The co-founder and creative director of brand B also discussed a recent survey: So, it's interesting. We just finished a survey, an internal survey of all of our customers, we ran it for thirty days. We said, what are your buying priorities and obviously fashion

and relevance is the first one. And then the second one is sustainability. But I think I would rather make a really cool product. And ya, by the way, it's sustainable...than try to [only] make a sustainable product. (Brand B)

The co-founder and creative director of brand C discussed the importance of fashion first and the stigma around sustainable fashion:

... the look of the product comes first because there is still a stigma around, well, if it's a product that's good for the environment it must look like a paper bag or something like that. (Brand C)

Brand D cuts heart shapes from red textile-waste and appliques them on the outside of the garment or the inside of their garments to surprise the customer (see Figure 12). They also applique patchwork hearts created from various shades of red fabric to t-shirts and sweatshirts. This concept evolved as a solution to the problem they encountered of what to do with all of the red textile waste they had put aside in a massive container, since a retail buyer had written on one of their purchase orders that nothing should come in red. The patchwork hearts are now the brand's signature and have expanded as they are now cut from various colours of post-consumer textiles.



Figure 12. Brand C's solution for red textile-waste are heart appliques.

Preloved (n.d.). Retrieved from <https://getpreloved.com/>

The founder and creative director of brand D discussed the importance of fashion and trends when fashion upcycling:

I think that's been one of our key elements with our success with Preloved is that we are, I always say we're fashion. I set out to make you look good, saving the planet just happened. Our [business] model is about fashion and then sustainability is the cherry on the top. It's the best part, but because we still stay so focused on fashion and trends and that part it's what's given the brand the longevity. We're not a crafty brand. It's not about taking old stuff and putting it together. ... That's not what we're about. We're about making cutting edge clothing, extremely fashionable, wearable clothing that just happens to have a recyclable element to it. One of the biggest challenges is ... you have to keep evolving. (Brand D)

Brand A's founder and designer discussed the correlation between creating a surprising product and its economic success. They designed mittens with an unexpected material—stretch denim combined with leather—to create a product that surprised buyers and consumers, resulting in one noteworthy sale of a thousand units to a major Canadian fashion retailer. The founder and designer discussed how innovative concepts were fueled by to find solutions that utilized the vast amounts of denim textile waste in original ways:

The innovation in fashion in the next few years won't be about shape. We're about ethics, style, innovation. And the innovation would be also, aha, we're going to reuse all those clothes that we've produced in the 20th century, in the 21st century. And how in the future we're going to be able to produce clothes that will stay in the loop and we're going to be able to make fashion circular. So that's where the innovation is, so that's [my motivation] for providing my pattern, I'm not really inventing anything. So, people really

[relate] to that, and it's a good product. It's good quality. It's really a product that look like now, and people like denim. So, for them, it's really cool, to see it in some other way that they never seen it [before]. So, for me, my design process, it's really about more like finding a product that will look nice in denim. (Brand A)

Each of the participants stressed the importance of fashion first in creating an upcycled product that will be appealing to the fashion media, retail buyers and the consumers. They indicated that the consumer is most interested in fashionable, trend-driven product and that the sustainable component is increasingly expected by the consumer to be part of the DNA of the brand.

Design: Sourcing Materials

All five of the designers cited challenges with garment sourcing that included finding large volumes of materials that are consistent in fibre, in the size of the piece of textile within each garment, in print pattern, wear, colour, and shade. The largest sizes available provided the most viable textile use of fabric for production. Each designer emphasized that the design phase began at the sourcing stage. Designer participants elaborated on sourcing locations, these included: post-consumer textile waste from sorting centres and rag houses and pre-consumer textile waste from standard fashion design companies or fashion apparel factories to acquire post-production off-cuts or end-of-roll textile waste. Each of the brands had evolved in terms of the type of post-consumer or pre-consumer textile waste they sourced based on the volume of materials available, and that influenced the aesthetics and values of their brand's identity.

Brand A designed using post-consumer indigo and black stretch denim and non-stretch denim products only, as these are abundant in supply. All were sourced locally from the largest textile recovery and sorting centre in Quebec, along with individual donations directly to the

designer. Denim textiles align with the brand's philosophy of democratic fashion for all genders, ages, and cultures. The designer considers the pattern shapes and sizes they are designing in terms of what could be cut from the leg of a pair of jeans. To save the selected denim that has the brand's desired worn aesthetic for production, the designer has implemented a strategy to utilize other companies' deadstock end-of-roll textiles to create the multiple sample prototypes required to create the desired fit and style. The designer of Brand A discussed their sourcing process:

People just want to get rid of their clothes, and this is where the need is. So, people are always very happy to give their clothes ... and people give me jeans. And, I also go to Certex, which is one of the biggest clothes sorting centre in Quebec. And they're amazing. They sort 7,000 tons of clothes every year, and they provide work to people with small limitations, one hundred people. ... They have all those bins with jeans, so I feel like the design process starts here. But I need to have an idea of what I want to do. With the mittens, you need jeans with some stretch, so it's more comfortable. With the bags, I work with 100% cotton. So, it depends, so when I go there, I start sorting with 100% cotton and the heaviness and lighter weight jeans, jeans that stretch and always black and indigo. And then I always think of my product in a way that the pattern [piece] will fit within a leg of jeans. So that's another point, because when you have fabrics, there's no problem here, but working with upcycling, you always have to think your product in a way that it's going to fit into one leg of jeans. (Brand A)

Brand B has its own sorting facility across the road from their factory in India, a country that has large volumes of post-consumer textile waste, providing the brand with a variety of materials in volume for their trend-driven collection. The co-founder and creative director discussed their sourcing process:

So, what the process of it goes through is, let's say the trends department will appoint the

trends and fabrics. So, we'll say, let's just take a couple of easy ones, you know, and these won't be relevant, but I'll pick them anyways. We'll say, look tartan is going to be big this fall. And, let's say denim, you know a certain hue of denim is going to be really big or white denim is going to be really big come spring. So, the trends department, just like a typical house in the U.K. would do, instead of going to the show in Paris and going to the fabric fairs, we have our own internal fabric fairs. So, what we do is we'll say, okay, we know that these are the five key fabrics for A/W 19. What we'll do is we'll then start pulling all of that fabric and we'll build volumes of it. So, we'll pick 10,000 pieces of plaid. And, then, literally then the team will then talk to the trend department and we'll say okay, what shapes are we looking for, what things are we looking at designing, if we were short on skirts or short on pants. And then based on that, they'll take the fabric fair, the commission of fabric, and then we'll start trying to mine out certain shapes or products out of that fabric. (Brand B)

Additional challenges were discussed around the selection of garments with “good” damage versus “bad” damage based on the company’s aesthetic, this judgement call required specialized training for those selecting the garments that serve as the raw material. The co-founder and creative director of Brand B discussed the challenges of training employees to recognize the company’s aesthetics of damage to maintain a consistent look:

On the picking side, teaching an aesthetic of what is good damage and bad damage can be challenging. ... The western aesthetic is something that would be beat up and kind of wear on it's even better. How do you translate what is valuable distressed versus shit distressed? (Brand B)

In 2018, Brand C changed its business model from utilizing post-consumer textile waste to utilizing pre-consumer textile waste. Before this, the designers were only able to produce

capsule collections in Toronto due to the limited supply of textiles available from local designers. The co-founder discussed the challenges with sourcing materials in volume:

The biggest challenge we had with upcycling or using textile waste in general to make new products is that it's really hard to source a consistent flow of material. And when you don't have that you kind of get stuck in this place where you might be doing these capsule collections based on just some of the smaller volume of material that you might have sourced. But it's hard to say that you can keep that production going, and so, we found that very challenging in terms of even being able to sell the product. We wanted to be able to supply some boutiques and things like that because they showed a lot of interest, but we were never able to guarantee that we would be able to keep giving them enough of what they really liked. So, I think that is one of the biggest challenges in upcycling is that you're trying to always source a consistent flow of this waste material to be able to output a product that's consistently made for people that expect and want to buy it when they want to buy it. (Brand C)

The co-founder of brand C discussed their solution to this challenge in that it was to shift their sourcing to apparel factories overseas in Bangladesh, India, Pakistan, Cambodia, and China, where the amount of pre-consumer waste is abundant, allowing them to create a scalable upcycled product stating, "one factory could output about 150 tons of this specific cutting waste bi-weekly. So, there's really no shortage of it." When the factories are cutting standard collections a marker is made that places all of the pattern pieces together, as close as possible to maximize fabric utilization, however, there are gaps in the layout in between the pattern pieces and the size of this textile-waste is well suited to making children's apparel. The company chose to work directly with factories who were producing organic cotton fashion apparel to source pre-

consumer sustainable textiles. The co-founder discussed the built-in advantages to using pre-consumer textile waste from the apparel industry, the fibre content is known, colour palettes have been researched and are trend-driven, textiles are already sorted by colour and the laundering phase to clean the textiles is not necessary. The brand benefits from the prior research and development conducted by those designing the originating collection. They then create their own colour palettes from the various pre-consumer waste. The brand also uses end-of-roll threads from the factories to match the textiles sourced. Since they are working with the factory to source the textile, they also work with factories to manufacturer the product. The brand's garments are designed without notions such as zippers or buttons to create a completely upcycled collection.

Initially, brand D worked with various types of vintage garment-textile waste selected from rag houses. The brand was not allowed to select from the vintage section, as that was saved for the boutiques who had already built a relationship with the supplier. The designer described their first visit to the supplier, with their team when they were directed to select from the bright coloured undesirable prom dresses in the corner. This limited access was the catalyst to the upcycled collection as the dresses were able to source was all they had to work with. The brand decided to redesign the prom dresses into tank tops and skirts. They have since built relationships with other suppliers and can select the vintage garments that are harmonious with their brand's aesthetic and values. The brand primarily sources French terry, jersey, and wool sweater knit garments to create their upcycled collection. The founder and creative director discussed the importance of consistency when sourcing garments for the upcycled collection:

A wool sweater is a consistent garment. Our goal when you work with upcycling and you are wanting to mass sell this, the key word is consistent. You need to create a garment that has consistency. A buyer does not like the word "assorted." A customer buying a

garment online wants to receive close to what [the sample style] they ordered. If you are going to upcycle and you're not looking at mass, that's when you can have a lot of creativity. ... That's not my business model. My business model is mass. So, you're constantly looking for consistency. Things that have consistency. So, a wool sweater has consistency. (Brand D)

Brand E is known for an authentic vintage aesthetic, and they select from multiple suppliers in LA to specifically 100% cotton American made denim (see Figure 13). The creative director and designer of Brand E discussed the challenges their company faced when sourcing:

In LA you have so many vintage suppliers it's insane; warehouses upon warehouses of stuff. We have mountains to go through. I used to source whenever we had an order, and then it really became difficult, we were running into this problem, where we would not really have the fabric in stock and then we would get an order and it would be difficult to get the fabric. So, I started buying in bulk. So, the storage locker in our building in downtown LA, is a literal pile of vintage stuff. It's obscene, but at least now whenever we need to make something we just go downstairs. (Brand E)

The challenges discussed by the participants during the design process in the materials sourcing section included having immediate access when needed to large volumes of consistent raw materials. Depending on the type of material required for the season and style, it may need to be consistent in fibre, in the size of the piece of textile within each garment, in print pattern, worn aesthetic, colour, and shade. The participations have implemented various systems to solve these challenges including vertical integration that includes a sorting centre for materials sourcing, building relationships with the owners of rag houses so that they are provided with a premium selection of vintage or sourcing pre-consumer textile waste at fashion apparel manufacturers.



Figure 13. Brand D's 100% cotton indigo denim with fringe trim. Photo: Alberto Newton.

Triarchy (2019). Retrieved from <https://triarchy.com/collections/atelier-denim>

Design: Collaboration

Three types of collaboration were discussed during the participant interviews, including in-house collection collaborations, artisan alliances, and partnering with other brands. These collaborations provided some solutions to the many challenges presented when creating an

upcycled fashion collection. The in-house collaborations consisted of trend and design teams working with the production and pattern making teams simultaneously. This is different from the standard fashion design model where the trend and design team would work in a different silo and pass off the design only once it's completed to the pattern making and production teams. The artisan alliances included partnerships with other makers such as local Shibori dyers. The brand partnerships discussed were with either major brands or major retailers.

Two of the participants had adopted a vertically integrated business model and discussed the importance of the collection's collaboration within the brand, including all of its stakeholders, the trend forecasters, designers, production managers, and business managers (see Figure 14). Vertical integration is a business model when multiple phases of production are completed by the same company versus some phases being contracted out to other companies (Richardson, 1996). Through working together, the stakeholders were able to create fashionable products while working in the most efficient way possible by anticipating the challenges of working with post-consumer textile waste and developing solutions as a team during the design phase. In the Design: Fashion First section discussing Brand B within the topic of trends and fashion, the co-founder and creative director also discussed how the various stakeholders within the company collaborated to run it more efficiently. The founder and creative director of brand D discussed the benefits of moving their company to within their manufacturer of many years and how they work as a team (Figure 15):

We moved into our manufacturing plant. We have worked with the same manufacturer for probably about 15 years. We work with many, but our main one is WS & Co or Redwood, they have two names. And it's the owner of the factory. ... He is just wonderful. He has been a big part of our manufacturing process over the years. ... He is involved in almost all of our production meetings...amazing talented man, he's a part of our design meetings because how we design will help how we manufacture, which will help how we cost our product. (Brand D)



Figure 14. Brand C moved their company into one of their manufacturer's for vertical integration and in-house collaboration. Preloved (n.d.). Retrieved from <https://getpreloved.com/>



Figure 15. Brand C moved their company into one of their manufacturer's for vertical integration resulting in increased efficiencies. Preloved (n.d.). Retrieved from <https://getpreloved.com/>

Brand A's designer had engaged in artisan collaborations in order to transform the denim material in new innovative ways through the sharing of techniques amongst crafters globally.

The designer discussed a few collaborations with specialist artisans:

I did a collaboration... she is a Shibori specialist. ... She is amazing, because she uses whole natural indigo, and she went to Japan so many times to learn about the technique. So, it is really the ways to fold and the many times you dip into the indigo... I am really interested in natural indigo. ... And I also worked with another girl that is an embroiderer. So, we did a couple of things and she's making my labels. She had the industrial embroidery machine. ... I also contacted people on Instagram. A girl in Africa, she is making necklaces with t-shirts, that I would like to do the same technique with denim. So, this is another way that I'd like to bring Kinsu, is really collaborating with crafters all across the world, recycling denim. ... I would really like to collaborate and, present the material in some other way and different embellishment. (Brand A)

The Shibori specialist had grown indigo plants locally to create the dye for the brand's iconic upcycled denim mittens thus aligning with the brand's sustainability ethos (see Figure 16). The artisan alliances provided solutions to the challenges of the upcycled denim always appearing the same, by elevating the textile-waste and providing financial gain for those involved.



Figure 16. Brand A's KINSU X INFUSE collaboration of Shibori-dyed upcycled denim mittens.

Photo: Bruno Berthelet. KinsuAtelier (2019). Retrieved from

<https://www.etsy.com/ca/shop/KinsuAtelier?ref=seller-platform-mcnav>

Additionally, two of the participants described brand partnerships as being an integral part of the business model whether they are made public or as a private label collection created for major retailers.

The co-founder of brand B collaborate with large-scale brands elevating their participation in sustainable practices. The brand's most recent partnership with Converse was featured in *Hypebeast*, a popular men's fashion and streetwear website that provides editorial content and has an e-commerce component (Brain, 2019). The co-founder and their team have been working on the upcycled denim project for the past 3 years (see Figure 17). This project demonstrates the concept of mass exclusivity as each pair is made of various shades of selected denim. The partnership with Converse Renew Denim's upcycled iconic Chuck Taylor styles, were released on August 22, 2019 (Santiago, 2019).



Figure 17. Brand B's collaboration with Converse repurposes denim diverting it from landfill. Brain (2019). Retrieved from <https://hypebeast.com/2019/8/converse-renew-denim-chuck-70-high-low-ox-beyond-retro-release-information>

Brand B has also been successful in creating private label bags and backpack collections for major brands sold at Top Shop and Urban Outfitters. The founder and creative director of brand D discussed collaborations with major retailers and working with their design teams to create capsule collections, including Roots, Indigo, Holt Renfrew, Sporting Life and Anthropologie:

So, we would work with these brands and work with their design team and then because they would reach out to us because they loved the concept and we want to create a product that was right for their customers, but still had a bit of Preloved in it. It was so exciting. I still love it. That's our big thing. We launched this season with a big collaboration with Sporting Life. [See Figure 18.] ... [It is] all about the great lakes of Canada, Lake Simcoe, Lake Rosseau, and got little recycled hearts and the line is deadstock material. It's super cute. I love collaborating with other retailers. That's probably my favourite part because you get to understand what their customer likes. The way they work. (Brand D)



Figure 18. Brand C's Preloved X Sporting Life collaboration made with deadstock textiles.

Preloved (n.d.). Retrieved from <https://getpreloved.com/>

The co-founder of Brand C discussed the possibility of engaging in Canadian made collaborations in the future:

And for us, we want to do a lot of collaborative work in Canada like smaller capsule collections of Canadian made products, but we also want to make a big impact to be able to be a true example of a scalable upcycled business model. (Brand C)

The three types of collaborations discussed by the participants included, in-house, artisan and retail or brand partnerships have been of benefit to all parties. The in-house stakeholder collaborations have provided the companies many efficiencies resulting in lower costs during the design and manufacturing processes. The artisan collaborations provided ways for the designers to elevate the post-consumer waste textiles by dyeing or embroidering to create new surface interest. The partnership collaborations with other brands and retailers provided further insight into a better understanding of the retailers' customer. The collaborations provided increased visibility for all parties involved.

Production: Labour, Cost, and Scale

The participants discussed labour, cost, and scale as the biggest challenges in the practice of fashion upcycling. When compared to typical garment assembly, manufacturing upcycled apparel and accessories demand additional phases and thus it is more time-consuming and costly to produce each accessory or garment. For instance, participants discussed sorting post-consumer textile waste by fibre and colour, laundering, selecting, deconstructing, strategic pattern placement, cutting, and organizing by colour in order to shade match the thread. Following the selection of garments from the supplier during the design process, the second phase of selection occurs during manufacturing. Garments with the desired amount of wear or in the case of denim, with 'whiskered' marks, are selected and the pattern pieces for the style strategically placed, with

the worn or “whiskered” area in the location communicated by the designer on the sample style. The designer co-founder, creative director, and designer of Brand E discussed the challenges with the cost of manufacturing their upcycled collection:

We do it all in downtown LA, because that is where the expertise is and that is where we are. But truthfully, it is just abhorrently expensive. Like when I sell anything from the Atelier line, it is just covering our cost, and that is the truth. (Brand E)

Each garment requires deconstruction before cutting, adding to the production time. All of the brands treat the disassembled garments as the fabric that they cut from to create the redesigned garment (see Figure 19). One of the participants stated that the practice of zero-waste upcycling might produce more creative results, but it is far more time-consuming and generally only allows for the production of one-of-kind or couture pieces. Zero-waste is the practice of creating a garment wasting none of the textile typical in standard fashion design and the technique may also be applied to upcycled fashion design (Rissanen & McQuillan, 2016). Zero-waste techniques aim to reduce textile waste through various approaches such as the jigsaw method, or the tessellation method that employ non-traditional geometric pattern shapes and often multiple garments within a marker layout leaving no gaps of fabric. Standard fashion design processes waste between 15% and 30% of the textile in a traditional pattern marker.



Figure 19. Brand A’s iconic upcycled mittens during deconstruction and reconstruction.

Photo: Bruno Berthelet. KinsuAtelier (2019). Retrieved from

<https://www.etsy.com/ca/shop/KinsuAtelier?ref=seller-platform-mcnav>

The founder and creative director of Brand D also discussed cost as being a challenge when fashion upcycling versus standard fashion design with the additional steps required: “Another deterrent is cost. Cost for sure. It is a labour of love... if you buy a bolt of fabric, there is no deconstruction. There is already from the-get-go, one extra step” (Brand D). Finding efficiencies within the manufacturing process was cited as the biggest challenge by all of the participants, as

most apparel producers are used to cutting off the roll. The challenges in cutting from the fabric available in sourced garments include size and shape limitations. This requires additional labour related to decision-making within these parameters. One participant discussed how the cutting challenges affect the scalability in fashion upcycling:

One of the biggest challenges we had is how do you scale and compete against new? So [a] typical cut and sew factory will have a table, you can lay out your fabric and be 50 deep. And then you lay your pattern, use your knife cutter, and you can cut 50 pieces all at once. Where with the upcycling you are continually cutting by the ones. So one of the biggest hurdles we have had is how do we cut efficiently and on-speed to compete against new. Because once you get to the sew factor, you bundle your twelve components and you can hand it to the sewing person. (Brand B)

Additionally, placing the pattern piece for each style strategically to utilize the worn or whiskered areas in the upcycling of denim requires each cutter to be trained to recognize aesthetically “good” damage versus “bad” damage from the brand's perspective. Some of the brands use hand laser cutters to speed up the process, but no one is using any other cutting technology because the investment exceeds the profitability. The co-founder of Brand C who manufactures their collection overseas discussed technology to aid in the processes, but said the factories are resistant as this could mean job losses where apparel manufacturing is a primary industry:

I found that the idea of using technology here to cut, some of the manufacturers that we were doing some of the work with are more eager to start maybe using some of those things now. But I find overseas they are really resistant to technology. I know they do some digital cutting. But what I found in conversations is that they are really scared of

technology because technology can basically mean the replacement of their people. And in these places where apparel manufacturing is a major primary source of income for their people, and workforce for their people. But they are really hesitant to take on anything that will replace them. Because there really are not any other jobs. So, there has been some really interesting conversations had with some of the people that we are working with. And actually, they are coming to ask us the same questions. Like, would you go over to using an artificial intelligence (AI), a robotting cutting system? Or robotting manufacturing system. (Brand C)

The co-founder of Brand C explained that they work with various factories and some prefer to cut the pre-consumer textile waste stacks digitally and others prefer to cut the pieces individually.

Organizing by colour to match thread was cited as a challenge since it is also time-consuming. Brand A developed a system that utilized old beer bottle boxes with 24 separate compartments to organize each pair of the collection's denim mittens by colour and shade during production not only for thread match but also to ensure the same amount of "wear" was on the right hand and the left hand. Brand C's solution for matching the thread was to cut the same colour trim for a single style.

All of the participants discussed the additional labour required during the fashion upcycling processes and the associated increased costs compared to standard fashion manufacturing processes. The larger brands with vertically integrated companies discussed the benefits associated to labour and costs within the design and manufacturing phases. Some of the brands have developed techniques to aid in the time-consuming process of organizing the textiles by colour for the sewing processes. All agree that there is room for improvement in the efficiencies of labour and costs.

Production: Textile Quality

The participants discussed a number of challenges associated in working with post-consumer waste including stains, odours, holes and stretched out areas. The participants have implemented a variety of techniques to solve these challenges. The designer of Brand A discussed the challenges of working with the vintage leather that they were sourcing and why they decided to work with new leather skins in combination with the upcycled denim for their iconic mittens:

For me, when you are upcycling, it is like you are adding a level of risk with the quality, because you don't have standard material, and actually you have to work to standardize a material that is not standardized. And this is with the sorting. Okay, this is this weight, it stretches, it has a hole, I cut beside it ... or I put it in the middle depending on what I do if I want it, if it fits with what I'm making. But with mittens you don't want holes, because you want them to be warm. And for me that job of standardizing the material that I was upcycling it was enough with the denim.

And I felt like the leather, it was harder, because also with the denim, it's always pants. I can count okay I can make four pair of mittens average in a pair of jeans ... I need to have two hundred pairs of jeans to do my production. Same thing with the bags, ... I can do one bag with one pair of jeans. So, I can count like this, but with the leather, it's some skirts and jackets and there's all those seams. And often its people who smoke that wear leather.

So the leather would smell ... sometimes the skin is dry ... and also, there is so much waste, all the knees, the elbows, it will stretch out with the leather. So, I could not

use this. All the zippers, the lining, the interlining, so I was finishing with small pieces of leather and a mountain of garbage, of stuff that I could not use. (Brand A)

Given the constraints of holes, stretched out areas, the smell of cigarette smoke, the various types of garments, and the multiple seams typically found in vintage leather garments, the designer no longer used vintage leather but new leather skins instead, combining new leather and post-consumer denim within some of the products for their collection (see Figure 20). The participants have implemented a variety of laundering processes for the purposes of cleaning the post-consumer materials. Stains and odours in garments sourced were mentioned by a few of the participants as problematic. One of the designer participants discussed the challenge of stains, their solution was to launder all of the vintage product that they had selected from the supplier before sending it into production. Initially, they sent all of the vintage clothing out for laundering, but the eventual vertical integration of this designer's company included a laundering facility onsite reducing the time it previously took to send the vintage to an external laundering facility. The laundering would allow the team to determine if stain removal was successful, and if they remained, to remove the garment from production. Additionally, the laundering process proved that the integrity of the quality of the garment was in excellent condition and if the textile did not hold up, the garment would be removed from production.

Some of the brands had discussed agreements with rag houses to provide them with bales of used clothing that were already laundered. One of the participants discussed that their laundering takes place in a patented laundering process that uses 90% less water than standard laundering. Another participant cleans all of the garments at a laundromat, and they plan to implement a more sustainable laundering practice using ozone washing machines, thereby reducing water consumption.



Figure 20. Brand A's iconic upcycled denim combined with new leather mittens.

Photo: Bruno Berthelet. KinsuAtelier (2019). Retrieved from

<https://www.etsy.com/ca/shop/KinsuAtelier?ref=seller-platform-mcnav>

To ensure the post-consumer textiles are of high quality, each brand had implemented rigorous hand selection processes and various types of laundering practices including on-site laundry, pre-laundered bundles provided by the rag houses, and patented laundering processes that use significantly less water than regular washing machines.

All of the designers called out scale as the number one challenge within the production phase. During the interviews, they discussed small volume production as not being economically sustainable. The inherent challenge was how to mass-produce and to make tens of thousands of an upcycled style using available sources of textile waste. The leading solution discussed was to design using garments with material consistency, such as denim, that is available in abundance at the sourcing level. The participants indicated that to achieve scale they must find even more efficient solutions to the additional phases of labour required in the fashion upcycling model that include sorting the post-consumer textile waste by fibre and by colour, selecting, deconstructing, strategic pattern placement, cutting, and organizing for manufacturing. The participants working within a vertically integrated company and location indicated that this had aided in improving the scalability of the company but acknowledged more efficient techniques need to be developed to increase volume.

Retail: Fashion Media, Retail Buyers, and Consumer Acceptance

The participants discussed the challenges of acceptance by the fashion media, retail buyers, and consumers within the realm of upcycled fashion. The participant from Brand D discussed the improvement they have seen in the acceptance of upcycled fashion during the past 25 years but suggested that another decade of exposure may be required for upcycled apparel and accessories to be accepted by the mainstream stating “Honestly, I still think after 23 years, it is

still a bit of ‘oh it is used.’ ... It has gotten a lot better, but I still think that is one ... at the consumer level ... there is a stigma. We need another decade of brands like Reformation”

The co-founder, creative director and designer of Brand E discussed the challenges when selling to retail buyers regarding consistency in upcycled collection: “It is problematic because there’s no, well, there’s consistency in fit, not in the colouration ... but for the most part, if people are buying it for the story, it really does not matter.” The co-founder and creative director of Brand C discussed the positive press they have received and the specific challenges of children’s wear in the fashion media:

The press has been extremely receptive and again children’s wear is not something that is put in fashion magazines, or really talked a lot about. There is this stigma that kids wear is just an extension of adult wear too and that it does not hold weight on its own. But what people really focused on in the press is that of how we do what we do. And you know we have been in Today’s Parent and most of the major Canadian news outlets. So, what excites us now is being able to break into the U.S. market and see if we can do something similar there. (Brand C)

Before 2014, the fashion media provided scant coverage on sustainability and next to nothing on fashion upcycling. Since 2014 fashion upcycling has been provided more visibility via multiple fashion publications with the participants in this study. The participants in this study have been featured in fashion publications such as *Denimology*, *Elle Canada*, *Fashion*, *Flare*, *The Globe & Mail*, *The Huffington Post*, and *WGSN*.

Some major Canadian and international retail buyers have embraced unique upcycled fashion products designed by the participants interviewed for this research study. The challenge one of the participants cited with some of the retail buyers is that the sample they see at the

buying appointment is the product they expect to receive in-store, in terms of fit, the textile fibre, colour, and pattern. While some buyers love when there is variation in the assortment, others do not. Another participant indicated that it is a challenge to get the buyers attention to view the collection so that they may grow their brand. All of the brands sell directly to the consumer via e-commerce on their website therefore bypassing any retail buyer resistance.

The majority of the participants had recounted stories of customers being excited about the upcycled fashion product. All of the participants reported that they had not received any negative consumer responses directly about the utilization of textile-waste for fashion apparel and accessories, but there is some hesitation when it comes to price as discussed in the next section.

Retail: Price

In an earlier section, labour and associated costs were cited as one of the main challenges during the production phase by all of the participants. The costs are ultimately reflected in the retail price. Some of the brands that have vertically integrated supply chains discussed how that helps to decrease the costs and those savings are then passed on to the consumer. Two of the five participants cited the challenge with some customers' expectations that the price of fashion upcycled accessories and apparel should be inexpensive. To mediate this assumption, the founder and creative director of Brand D emphasized that the textile is vintage, but the design is new in an attempt to address the consumers' perception regarding price:

It is just using vintage materials to make that. That was a huge issue that I had seen 15 years ago was really difficult to get people to understand. Is it vintage, is it used? No, it is not used. That garment is brand new. You could buy that garment in extra small to an extra-large. ...The fabric is what is second hand, but the garment itself ... that's what is

the big difference with Preloved. We also work with deadstock materials and new fabrics and blend the vintage. Sort of a new part of what we do. You need to create a great product that's sustainable. That's how you become a success today. (Brand D)

The co-founder, creative director, and designer of brand E discussed their approach to price perception in the luxury market (see Figure 21): “You need the optics of vintage to justify the price. We usually just work with Swarovski, because the Atelier line already has such a high price point, we have to add excessive embellishment to kind of show the buyer” (Brand E).



Figure 21. Brand E's iconic luxury denim jacket with Swarovski fringe. Photo: Alberto Newton. Triarchy (2019). Retrieved from <https://triarchy.com/collections/atelier-denim>

Three of the participants discussed the importance of accessible consumer pricing to provide democratic fashion and to be able to make an impact by redesigning the large volume of textile waste, thereby diverting it from landfill. The co-founder and creative director of Brand B discussed the price that is acceptable for their consumer. They discussed the challenges of producing the product locally at accessible price points; therefore, some of the product is manufactured overseas:

For upcycling to be truly successful, or for us to make an impact or move the needle at all on the crisis of stuff, our average price point has to be no more than 24 pounds. Call it 35 Canadian dollars. So, if it is going to be accessible, then we have to figure out, okay, how do we execute within the margins we typically want so that we can land an item on our shop floor for \$35? So, the reason why this is important is we start with our target price. This is what we need to achieve. Product has to hit the floor at this price. (Brand B)

In an earlier section, the designer of Brand A mentioned that they had begun to sell their patterns online. This was a way to provide access to what might be considered an expensive product by some consumers. Brand A's solution was to adopt a disruptive open source fashion business model by offering for sale, the same items from their collection as DIY (Do It Yourself) downloadable patterns, priced at \$1.99 each, allowing the items to be more accessible to the consumer (see Figure 22). Niinimäki and Hassi (2011) describe the open source fashion as a business model that designers use to sell their patterns and the sewing instructions to the consumer.

This open source sharing portion of the business model also provides passive income to the company:

I'm also selling my patterns online with tutorials, and if you want to do it yourself, go get

it, then do it. And wow, you're selling your pattern. It is such an opposite way. In fashion we are so, my God, this is my pattern. But we are not thinking this way ... I feel we are sharing now. In fact, Kinsu is becoming ready-to-make focus instead of ready-to-wear. I have also in the past month created two licenses for the sewing patterns, a personal one and a commercial one, as I was beginning to have demand from crafters who wanted to sell the goods they make with Kinsu patterns. (Brand A)



Figure 22. Brand A's DIY patterns are available as a Personal License or a Commercial License.

Photos: Philippe Richelet. KinsuAtelier (2019). Retrieved from

<https://www.etsy.com/ca/shop/KinsuAtelier?ref=seller-platform-mcnav>

All of the participants discussed that the time-consuming practice of fashion upcycling with the extra required phases during the design and production processes often leads to higher prices at retail. Each brand has been working toward finding efficiencies at various phases of the fashion upcycling process from sourcing through to the retail.

Retail: Brand Narrative

All of the participants indicated that their companies are promoting the sustainable practices they engage in either on their website, on their garment labels, or on their hang tags. The designer of Brand A reports that the customer is looking for transparency: “More and more people are looking for more sustainable or looking for having confidence in the person that is selling the product. More people want to know where it was made, by whom. These are the questions that the customer right now is more interested in that, the transparency.”

Brand A’s designer discussed that while enrolled in a business program, they were told not to talk about sustainability because people did not want to know about it. The participant believes that not talking about sustainability is an outdated way of thinking.

Brand C’s labels are screen printed on to the garment with their tag line “Negative Waste. Positive Impact” communicating the sustainability narrative to the consumer visually and eliminating the extra textile that would normally be used for a label. The co-founder and creative director of brand C discussed how their labels are made (see Figure 23):

But, for right now, for this next collection we’re putting out were using just these end of roll threads, trims, waste, scraps and then waste inks for the little screen prints label inside and then the tag. And again, we’re using a screen-printed label inside the garment as well, just inside the t-shirts as opposed to a cotton one. And again, it’s just the intention that we don’t need to necessarily use another piece of fabric when we can just screen print right inside the garment. So, it’s about minimizing waste, even in those little ways as well. (Brand C)



Figure 23. Brand C’s iconic children’s unisex “Disruptor” Tee with screen-printed label using waste ink. Nudnik (2019). Retrieved from <https://littlenudniks.com>

Each brand had developed frameworks to increase their efficiencies and through the participation of this study have shared their knowledge that may further advance the practice of up-cycling. All of the participants communicate the various sustainable practices their company engages in via blogs, video, television, social media, and by speaking at industry or academic conferences to further the brand narrative.

This chapter’s findings of the qualitative data included challenges and solutions that were organized by theme of design, production and retail. A summary chart was created for each of the three main themes: design, production, and retail. Each chart provides an overview of key findings in relation to challenges and solutions experienced by the participants during the upcycling processes (see Figures 24, 25, and 26).

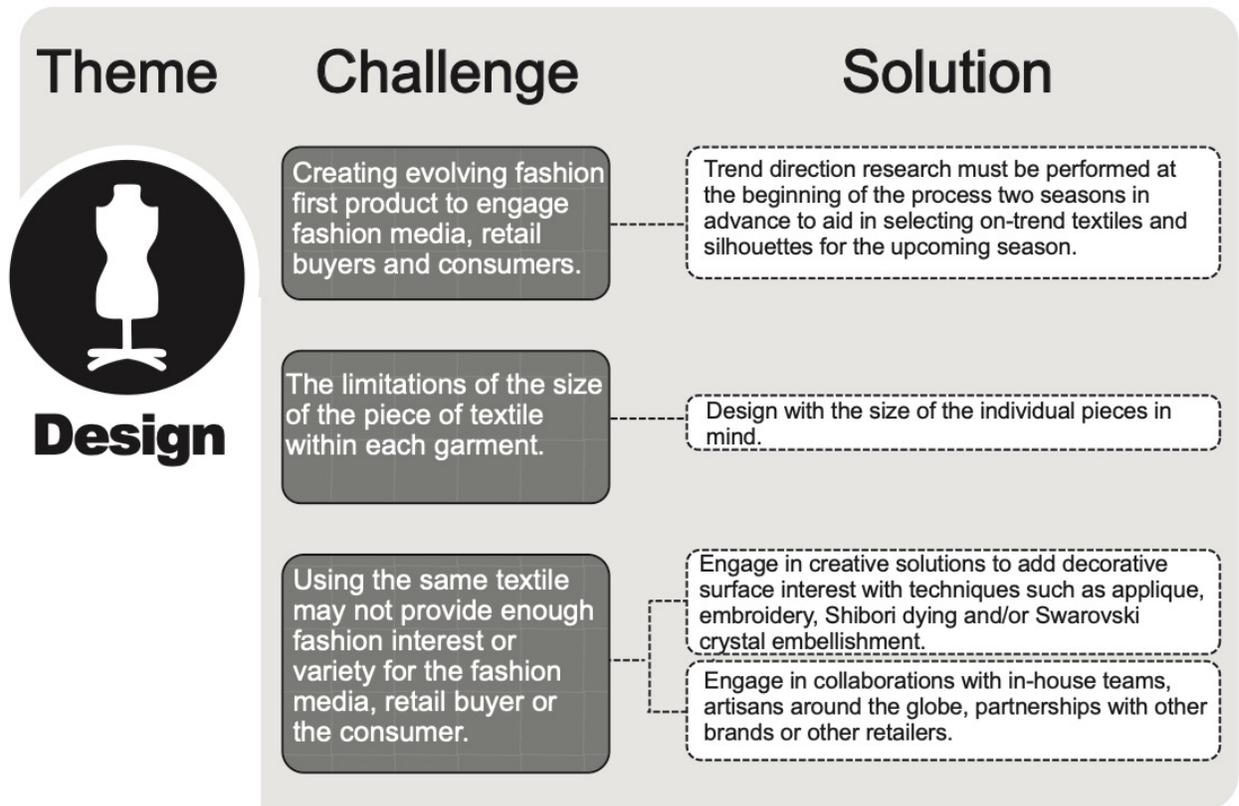


Figure 24. Design: Summary of findings on the challenges and solutions in upcycling.

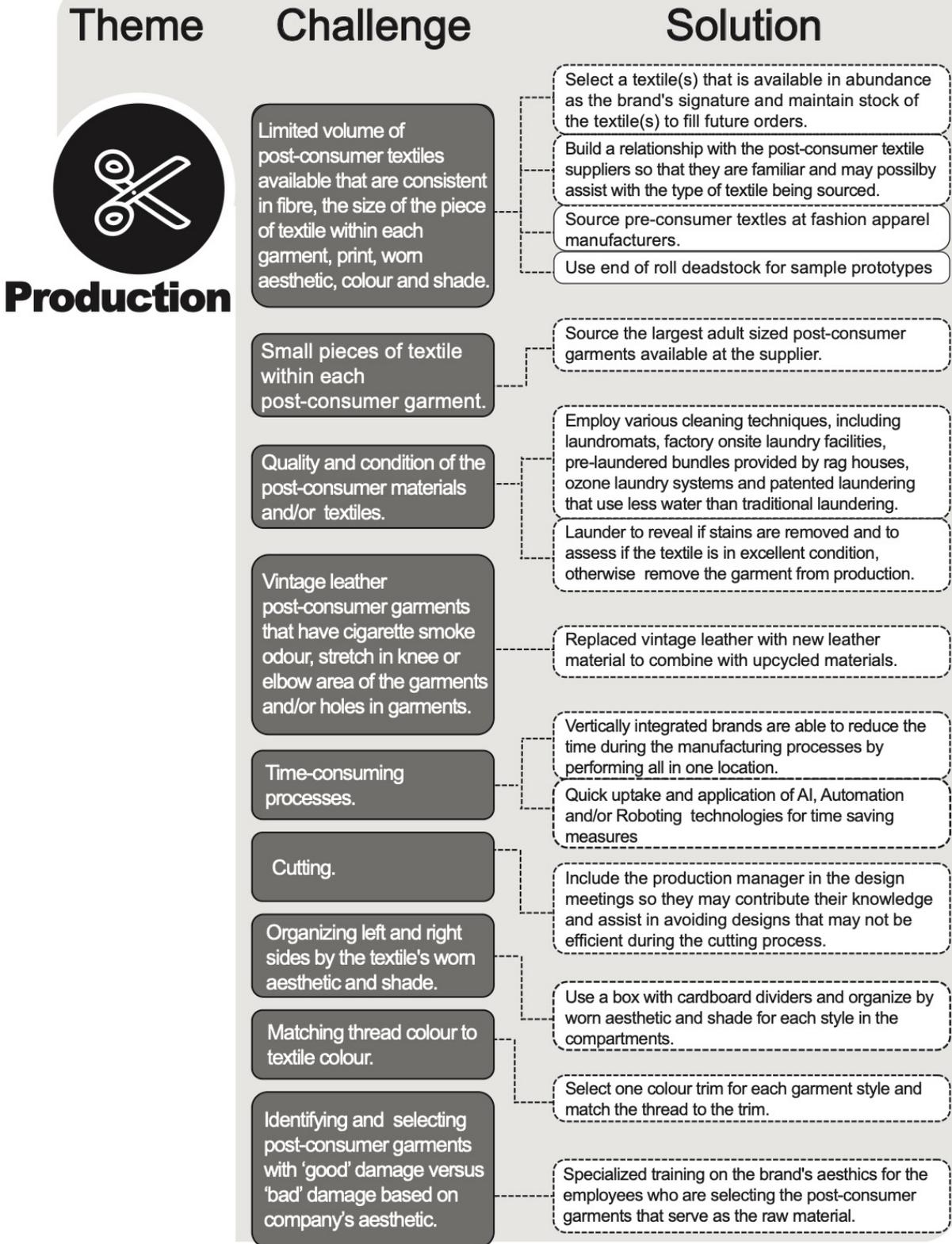


Figure 25. Production: Summary of findings on the challenges and solutions in upcycling.

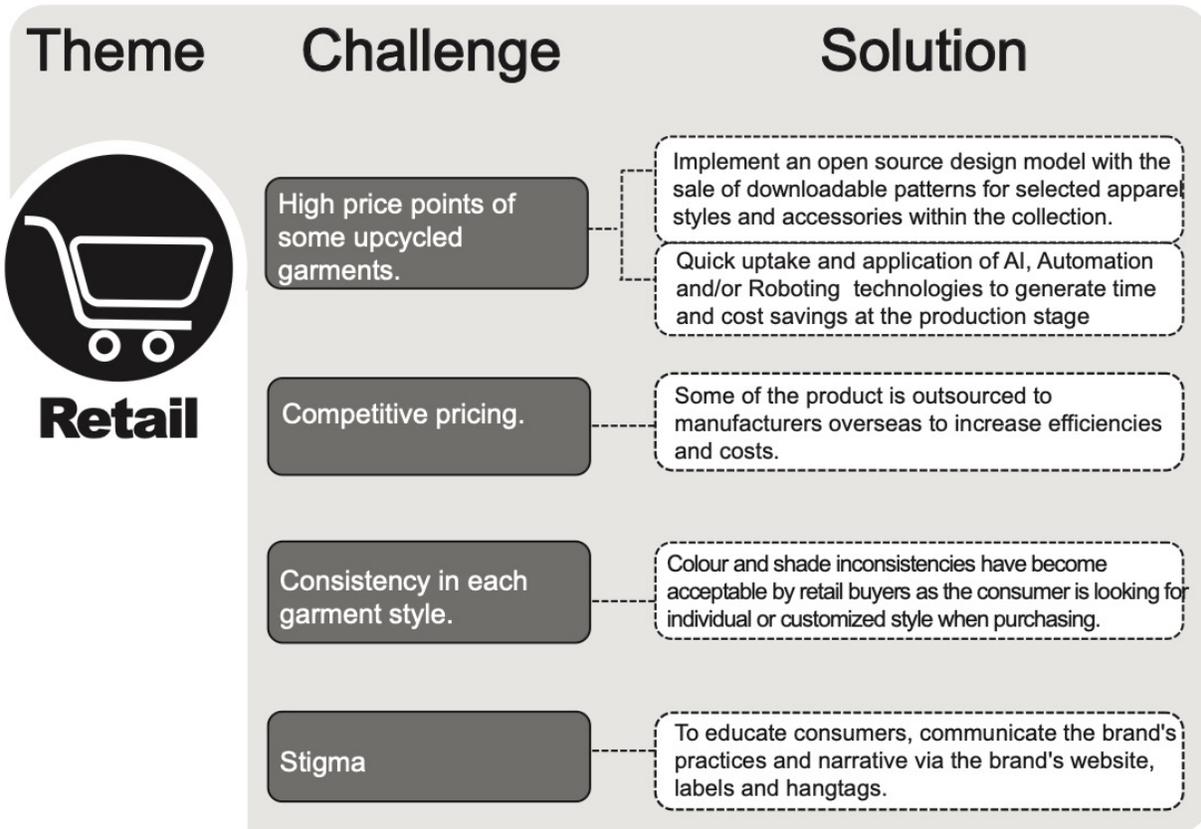


Figure 26. Retail: Summary of findings on the challenges and solutions in upcycling.

This chapter presented the results of this qualitative research study. All of the participants identified that for the product to be desired by the consumer, most importantly, it must be fashionable. All of the designers indicated that there must be consistency in the materials used for each style, and the materials must be available in large volumes to scale the business. All of the companies were involved in various types of collaborations. Within the manufacturing theme, all of the participants cited labour and costs as a challenge when manufacturing upcycled fashion. All of the companies had implemented cleaning processes at the beginning of the manufacturing phase. Increasing the number of units per style was cited as one of the biggest challenges encountered by the participants during the production phase to scale the business. Each founder had different experiences at the retail phase within the category of bricks and mortar, but all of the brands sell their collections via e-commerce.

CHAPTER FIVE: DISCUSSION

This chapter discusses the results presented in Chapter 4 using the same sections of design, production, and retail. The findings from this research study revealed three main subthemes within the Design theme, including the importance of fashion within the product, challenges associated with sourcing materials, their volume and consistency, and collaborations with other brands or retailers. The three main challenges within the production theme were labour, cost, and scale; and textile quality. The retail theme included the challenge of acceptance associated with the fashion media, retail buyers, and consumers; price, and brand narrative. The findings also revealed that some of the design, production and retail is undertaken in other countries on a global scale. The findings suggest three types of upcycled processes. They include trend driven utilizing post-consumer textiles, textile driven utilizing post-consumer textiles, and textile driven utilizing pre-consumer textiles. Summarized charts were created for each of these three processes and a standard chart adapted from the Han et al. (2017) study. These more detailed charts provide insight into the various phases of upcycled fashion (see Figures 27, 28, 29, and 30).

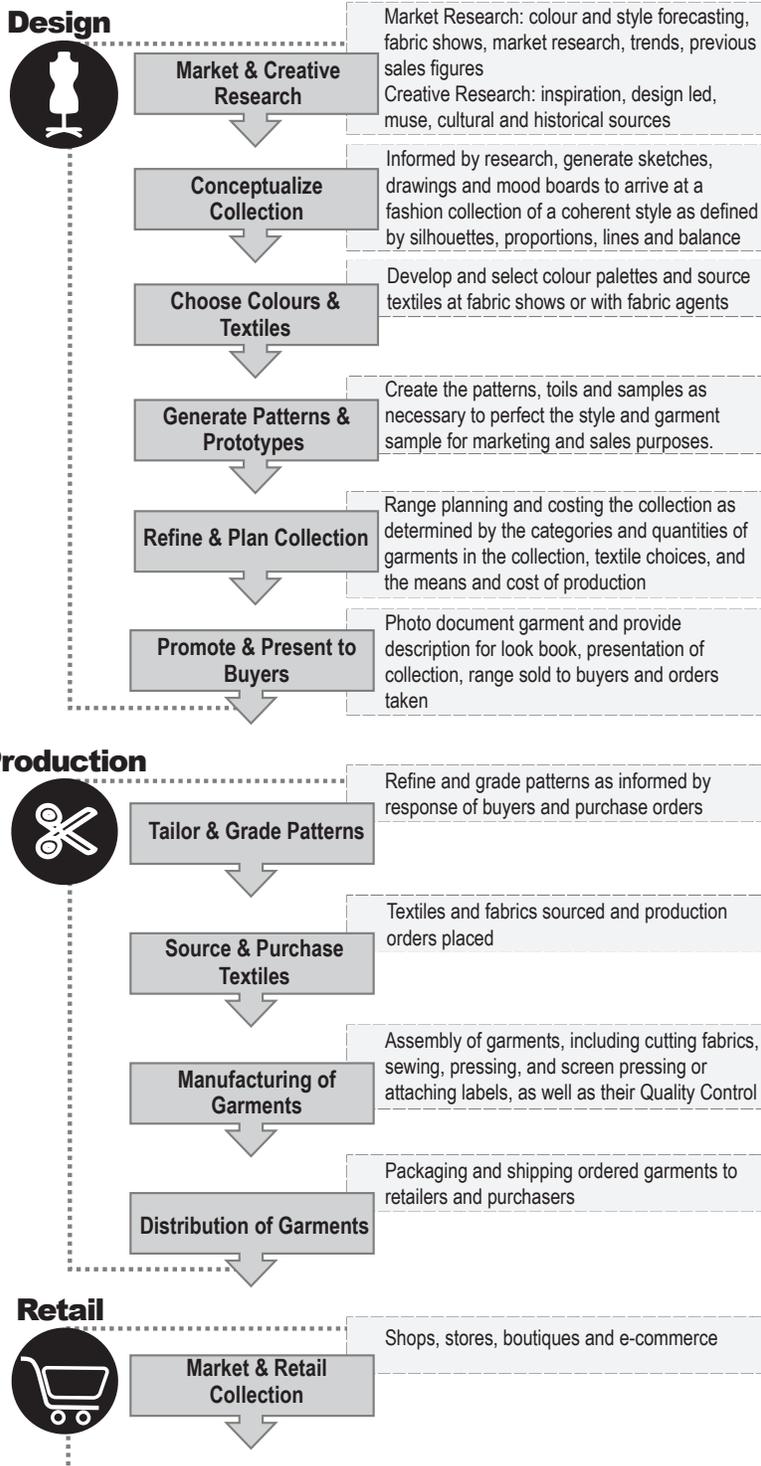


Figure 27. Standard fashion process. Adapted from Han et al., 2017.

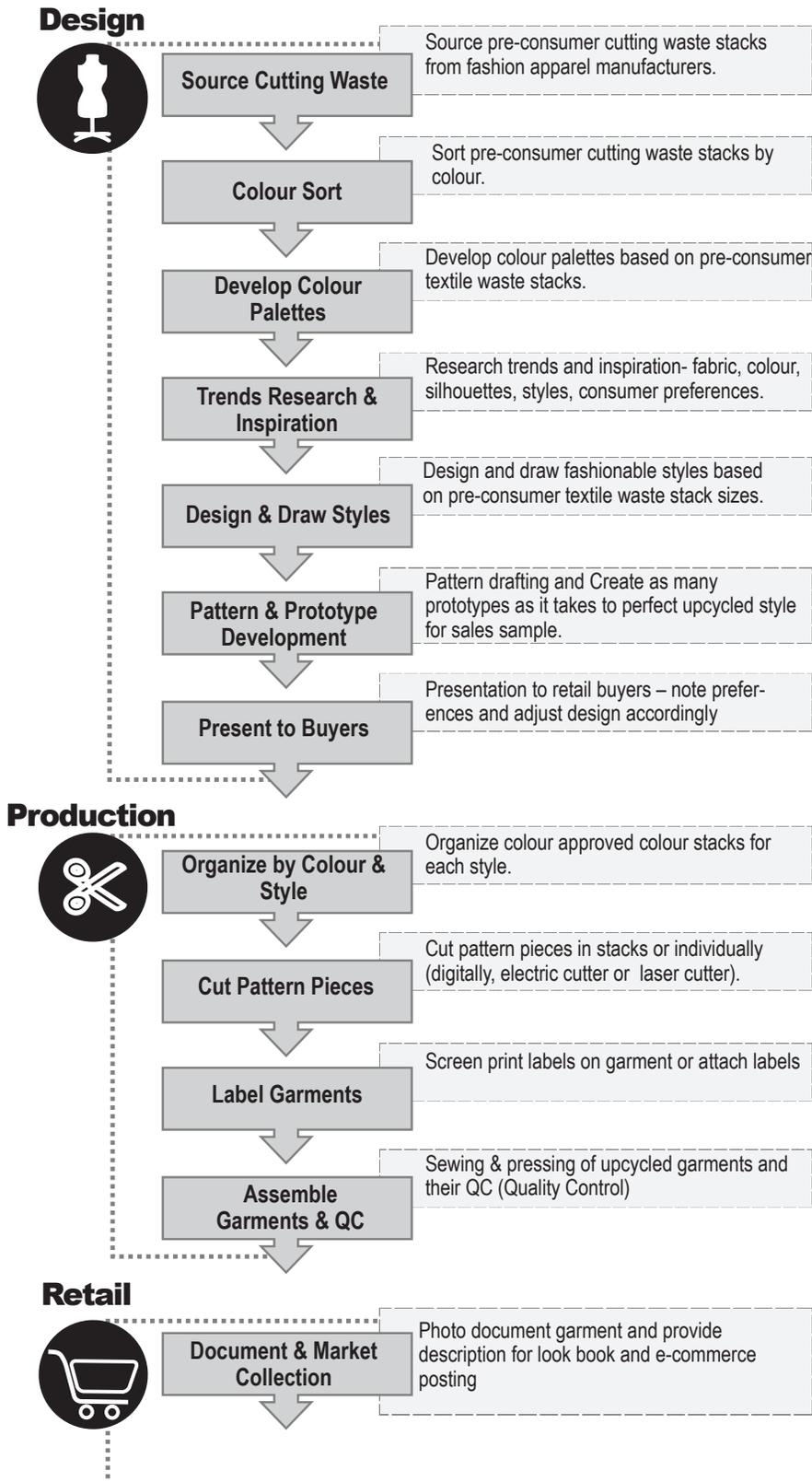


Figure 28. Upcycled fashion process—Textile driven using pre-consumer waste.

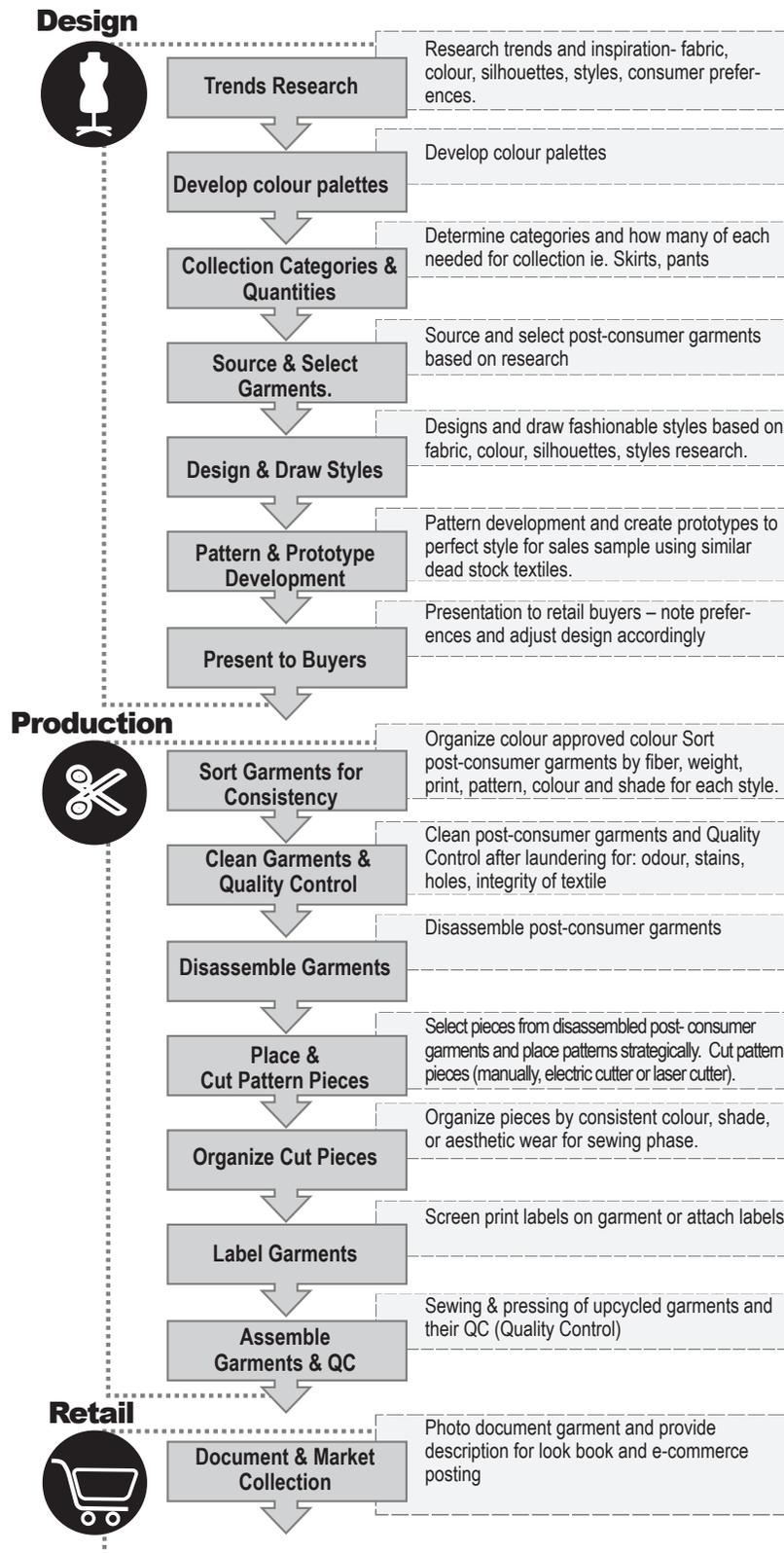
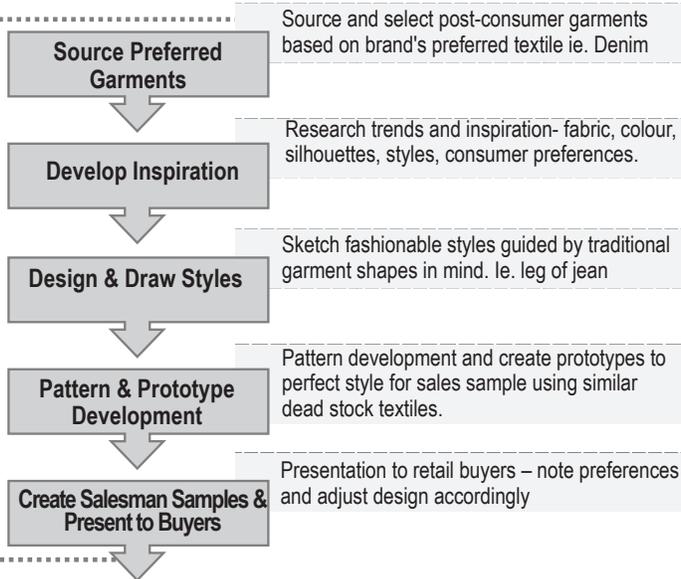
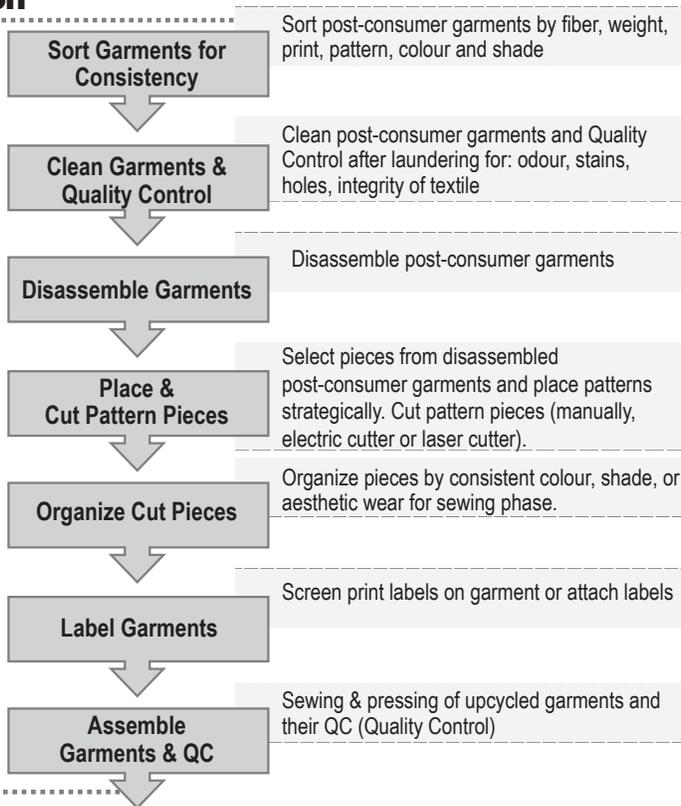


Figure 29. Upcycled trend driven post-consumer waste process.

Design



Production



Retail



Figure 30. Upcycled textile driven post-consumer waste process.

A figure has been created to compare the differences and similarities of each of the three fashion upcycling processes described by the participants versus the standard fashion process within the themes of design, production and retail. The comparative chart is an abbreviated version of all of the standard and upcycled processes (see Figure 31).

The pre-consumer textile driven upcycled fashion process is similar to the standard fashion process in the number of phases. The post-consumer textile processes, which include trend-driven and textile-driven, include the extra phases when working with end-of-consumer garments.

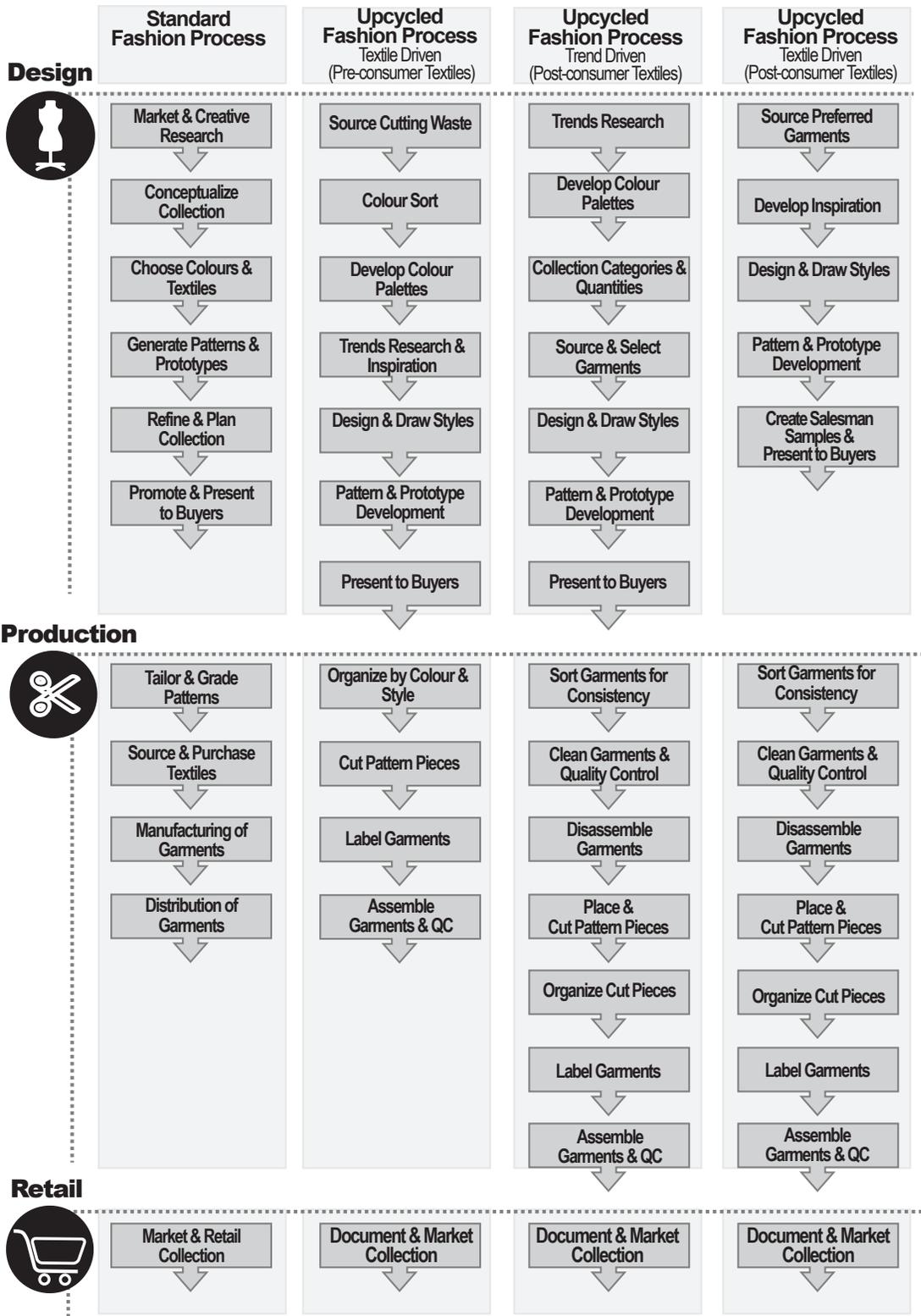


Figure 31. Design: Standard versus upcycled processes. The Standard Fashion Process chart is adapted from Han et al. (2017). The three upcycled processes are the results from this study.

Design: Fashion First

Fashion first is an integral part of the design brief for the three types of upcycled fashion processes. Few retail buyers and consumers will purchase fashion products only because they are sustainable, thus, retail success is dependent on a sustainable product assortment that is fashionable. Similar results were found in the Streit and Davies's (2013) study, where the participants indicated the product had to be design driven. However, in the Han et al. (2017) study, research in relation to trends, colour, fabric, and style and consumer preferences were the second phase following post-consumer textile selection at the beginning of the design process. As seen in this research study, and the Han et al. study there are multiple process orders depending on the brand and the brand's manufacturer (2017).

Design: Materials, Volume, Consistency

Acquiring consistency in the volume of material derived from textile waste is a universal challenge for designers creating upcycled collections as supply is limited to availability of stock at the various suppliers. This finding is consistent with past studies (e.g., Cassidy & Han, 2013; Dissanayake & Sinha, 2015; Han et al., 2015; Han et al., 2017), and the companies that participated in this study also indicated the same challenges with materials, volume, and consistency. It is important to note that fashion designers who upcycle denim are the exception. They do not encounter challenges with volume as denim is available in abundance given that people of all ages and genders wear and dispose of garments made of this material. Although the base textile is available in significant volume there are still challenges associated with consistency (fibre, colour, and pattern). In response, designers have created and implemented various systems, such as utilizing vertical integration in their business model by sourcing from their company-owned sorting plant. Similar to findings in Han et al.'s (2017)

study, some buyers are accepting of variation in upcycled collections as this provides mass customization, a concept that is increasing in popularity with retailers and consumers.

To solve the issue of acquiring volume in consistency, one of the companies sourced directly from fashion apparel manufacturers overseas. Creating a collection with a focus on one specific but widely available textile such as jersey or wool sweater knit was another strategic approach.

Design: Collaboration

Fashion upcycling companies are engaged in collaborations with artisans and retailers to create an innovative product. The brand collaborations are not only a means to increase the economic viability and the visibility of the brand, but also to raise consumer awareness regarding fashion upcycling. Those that strategically align their collaborations with other sustainably driven artisans or partner with retailers working toward increasing sustainability within their company are generally successful. This was highlighted in the findings of the study done by Dissanayake and Sinha (2015), where they suggest collaboration with other designers, retailers and commercial waste companies. This is to advance innovation where companies in the study have had success through stakeholder collaborations. Han et al. (2017) also advocate that fashion upcycling designers collaborate with large-scale retailers.

Manufacturing: Labour and Cost

Fashion upcycling is a fairly new process within the fashion design space, and therefore, efficiencies within the system to integrate the additional phases required in the production process have not been fully developed and this impacts labour costs. Labour and the resulting costs have been highlighted as one of the biggest challenges in fashion upcycling (Cassidy & Han, 2013; Dissanayake & Sinha, 2015; Paras & Curteza, 2018). Although garment disassembly

and cutting are possibly the most challenging and labour-intensive phases in manufacturing, incorporating affordable technology may increase economic efficiencies.

Production: Cleaning

Cleaning is an important additional phase in the upcycling process, and one that has several solutions to minimize the impact on labour and costs. Participants in this study recommended many solutions. The various cleaning processes discussed to ease cleaning post-consumer textile waste included: on-site laundering facilities, agreements with rag houses for pre-washed bundles, ozone washing machines, and facilities that use 90% less water for laundering.

Production: Scale

The biggest challenge in fashion upcycling is in achieving economically viable mass production to create a scalable business. More efficient solutions for disassembly and cutting must be developed. Vertical integration of fashion upcycling companies is vital, efficiencies in the production process will lead to scale given that many of the phases may be conducted simultaneously. This requires collaboration among all of the stakeholders (trend forecasters, designers, production managers, selection and teams, pattern drafters, drapers, cutters. and sewers). Cassidy and Han's (2013) study indicated that it was mostly niche fashion companies with relatively limited production volume that performed upcycling. Dissanayake and Sinha (2015) and Han et al. (2017) performed interviews with upcycling brands that included companies that were noted as "micro" to high-profile brands who were engaged in collaborations with large retailers. Direct comparison with the companies in past research studies versus the companies in this research study may not be made as each study published different types of information in relation to market category, type of product, what the brand is known for, the type

of textiles sourced, collaborations, where production was based and with whom the interview was conducted, I would propose that the Brand Overview chart (Figure 5) created for this study be expanded on and utilized for future research studies so that the area of fashion upcycling may be analyzed further. The findings of this study indicate that there has been some growth in fashion upcycling to include companies that mass produce.

Retail: Fashion Media, Retail Buyers, and Consumer Acceptance

Contrary to past research (Cassidy & Han, 2013; Streit & Davies, 2013). The participants in this study indicate that fashion media, buyer and consumer mindset have shifted toward more acceptance of upcycled fashion. Past academic literature, educators, and some in the fashion space indicated that discussing sustainability may deem the brand unfashionable. Increased discourse on the topic of sustainability, the circular economy and fashion upcycling will raise consumer awareness. Streit and Davies's (2013) exploratory study "Sustainability Isn't Sexy" indicated that all seven of the designers whom they defined as ethical discussed challenges associated with promoting their brand. Cassidy and Han (2013) suggested that media could be of assistance in shifting consumer mindset in the area of fashion upcycling. The results from this study suggest that there has been an improvement in acceptance from the fashion media, fashion buyers and consumers during the past 25 years but there is still more to be done.

Retail: Price

Although all of the five participants practise fashion upcycling, each company has an individual brand aesthetic that lives in different market categories and is directed at a range of target customers. In general, customers have price expectations for upcycled fashion apparel that is comparable to the prices they are used to paying for standard ready to wear fashion. For example, the mass/fast fashion consumer expects to pay certain prices regardless of the product

being upcycled or not. This is also true for contemporary luxury designer collections. One notable exception regarding price expectations is that some consumers believe that upcycled products should cost less because fabrics are not new and cost much less than new textiles.

Offering the consumer various ways to access the designed product is worth considering. Niinimäki and Hassi (2011) discuss an open-source design and co-creation approach where the designer sells their patterns and directions online for the consumer to construct themselves. The findings from this study are similar, the designer from Brand A sold their DIY patterns with construction instructions online so that the consumer might create their own upcycled fashion. The designer of Brand A recently had multiple online requests from crafters asking if they may use the patterns for their retail business, leading to the creation of commercial use patterns. Niinimäki and Hassi (2011) also advocate actively engaging the consumer, as this promotes emotional durability (see also Chapman, 2005) to upcycled fashion items, leading the consumer to use it for a more extended period. Further rationalization of price may be addressed via brand narrative, as discussed in the next section.

Retail: Brand Narrative

A brand's narrative in the fashion space is essential, however, there are differing opinions about whether or not to discuss sustainability. The fashion landscape has changed dramatically over the past few years, and although previous discourse advocated not to discuss sustainability, there has been an increase in the importance of purpose-driven products for the Millennial consumer (Hsu, 2017). Given that fashion upcycling brands are reusing post-consumer or pre-consumer textile waste thereby diverting it from landfills, it is essential that the brand communicate this to the consumer. This elevates the perceived value of upcycled apparel and may drive business for the brand increasing the likelihood of economic success. The results from

this study indicated some designers had been advised not to mention sustainability and these findings were similar to past research (Streit & Davies, 2013). Binotto and Payne (2017) argued that communicating the upcycled component as a narrative for the brand can aid in the fashion collection's perceived value. The Paris-based Maison Martin Margiela Artisinal collection is an excellent example of brand narrative meeting perceived value (Moorhouse & Moorhouse, 2017). Past research findings have indicated that communicating the narrative about the history and lived experience of the upcycled textiles can also increase perceived value (Binotto & Payne, 2017; Brown, 2010, Fletcher, 2014; Keith & Silies, 2015).

A key recommendations chart has been created based on the analysis and discussion of the results of this study (see Figure 32). These guiding strategies may further the practice and encourage more designers to uptake fashion upcycling.

Key Recommendations

- 1** Design with fashion first, sustainable practices are expected
 - 2** Design with a **signature style** for the brand
 - 3** Design with the **post-consumer garment piece in mind**
 - 4** Include the **production manager** in design meetings
 - 5** **Collaborate** with artisans, other brands and/or major retailers
 - 6** Use **deadstock textiles** for prototypes
- Design**
- 
- 7** Maximize **vertical integration**
 - 8** **Launder before** manufacturing
 - 9** **Build relationships** with your suppliers
 - 10** Consider **pre-consumer textile waste** in addition to post-consumer textile waste
 - 11** Implement **technology** where feasible
 - 12** Train employees on **brand aesthetic**
 - 13** Implement a **sorting framework** that makes sense for the brand
- Production**
- 
- 14** Consider **open source design model** for the brand
 - 15** **Communicate and promote** your brand's sustainable practices
- Retail**
- 

Figure 32. Key recommendations for fashion upcycling.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS FOR FURTHER RESEARCH

This concluding chapter includes contributions, implications, and directions for further research. The purpose of the conclusion is to elaborate on the themes of design, manufacturing, and retail within the practice of fashion upcycling and how they might advance within the professional and academic practice within fashion through the suggested further research.

Conclusion

This study contributes new insights to the current state of the upcycling design practice within fashion, and it highlights strategies for designing upcycled fashion apparel and accessories. Based on the literature review, few researchers have interviewed the founder and designer of brands who are practicing fashion upcycling, and the majority of those studies were conducted in the United Kingdom (Dissanayake & Sinha, 2015; Han et al., 2015; Han et al., 2017; Strait & Davies, 2013). Brand C has broken new ground in its approach to source directly from the fashion manufacturing industry in order to acquire volume in their preferred textile of 100% organic cotton. This technique is the least time consuming of the three upcycled processes noted in this research study, contributing a new upcycled process to be used in future research. Diverting excessive textile waste in landfills that produce emissions and cause harm to the environment can be mediated by advancing the practice of upcycling. Exposing designers to the viability of upcycling through education will encourage more implementation of the practice. Upcycled collections are a viable part of a circular economy for fashion apparel and accessories, thereby reducing the environmental impacts when compared to standard fashion manufacturing processes. This is important knowledge for educators, students of fashion design, fashion designers, and for future academic research.

Recommendations for Further Research

This study investigated the challenges and successes of creating upcycled fashion apparel or accessories from the designer's perspective. The qualitative findings indicate that the most significant production challenges were disassembly and cutting as they are labour intensive and thus costly. To remain competitive and to scale the business, labour costs must be reduced. I would propose that the comparison chart created in the Production: Scale section, might be utilized for future research studies so that so that the same type of data may be collected.

Future research that focuses on upcycling and the use of technology would provide needed production strategies to ease labour costs, for example the implementation of existing Artificial Intelligence (AI) and robot manufacturing technology to improve efficiencies during the cutting process. Further investigation into the cutting phase of upcycling is required, specifically if there are any affordable technologies that exist. If technologies are successful and implemented, then the implications for the fashion space would be those entire workforces would need to be retrained, shifting from manual operations to AI or robotics. In recent years, a number of postsecondary fashion design programs in Ontario, Canada have included fashion upcycling within the curriculum. Future research could investigate fashion design curriculums at post-secondary institutions on a global scale in regards not only to fashion upcycling, but also the implementation of sustainable practices, open source design and co-creation models. Further implementation within the fashion design programs will allow for more practice and exploration by students that may contribute to the development of more fashion upcycling strategies. Workshops led by fashion upcycling leaders could be developed and offered at public and private institutions to train fashion design professionals who are in the industry. Another recommendation for future exploratory research would be to include empirical studies to

investigate new design principles for end-of-consumer textile products redesign and how these principles might be introduced in fashion design curriculums and to fashion industry professionals.

Upcycling is an emerging practice that is gaining more interest from fashion designers, the fashion media, retail buyers and the consumer. The designers who have been creating upcycled apparel and accessories for more than 15 years have proven the viability of this sustainable design practice. This study investigated the challenges, solutions and successes and encountered by founders, creative directors and designers of fashion upcycled apparel and accessories brands. Each participant discussed the systems they have implemented during their time practising upcycling to increase their brand's efficiencies and through the participation of this study have shared their knowledge that may further advance the practice of up-cycling. The challenges and solutions charts developed provide best practices for apparel and accessory designers who engage in fashion upcycling, for educational purposes to engage future fashion designers, and for the purpose of future academic research. This research study, with a focus on sustainability, the circular economy, and specifically upcycling has contributed to my role, as a designer, trend forecaster, and as a professor of fashion design, so that I may engage future designers, not only in fashion upcycling but also in various types of design approaches and sustainable practices.

In conclusion, this research study was undertaken due to the climate crisis and increasing amounts of textile waste being sent to landfills, specifically the waste that is contributed via the fashion space. Since I began this research study in 2018, the numbers of town and city councils that have declared a climate emergency have increased, indicating that we, the citizens of the world must continue to find solutions to the issues that are contributing to the crisis. This central

aim of this research study was to determine the challenges, solutions and successes of upcycling to advance the practice, thereby diverting textile-waste from landfill and reducing harm to the environment.

Appendix A

Demographic Questionnaire



Please fill in the following:

Company | Design Studio Address: _____

Preferred Email Address for correspondence: _____

Please answer the following questions:

1. How many years have you been designing apparel and / or accessories?
 2. How many years have you been designing upcycled apparel and / or accessories?
 3. Do you design independently or with a team?
 4. How many employees are in your company?
-

Appendix B

Interview Guide

1. What first interested you in fashion?
2. Would you describe your fashion training?
3. Tell me about the history of your company/brand (get the descriptive statistics here, years in business, sales volume, number of employees do it like a demographic survey?

Provide categories to choose from....
4. Would you describe your brand's philosophy? How do you define upcycling for your brand? Why did you choose to 'upcycle' garments as opposed to traditional design and manufacturing? ie. company values? personal commitment? Market?

Design / Sourcing

1. Would you walk me through your design process?
2. Would you walk me through your manufacturing/production process (team or individual described here)?
3. Does your brand upcycle post-industrial, pre-consumer or post-consumer waste? What factors influence the proportion of post-industrial, pre-consumer or post-consumer waste that is incorporated into your collection? If so, for what reason? Ecological or aesthetic reasons?
4. Where does the brand source materials? Post-consumer waste: Value Village? Public donations? Collectors? Sorters? Swaps? Fabric mills? Designer post-industrial waste?
5. Would you describe what you do with post-industrial, pre-consumer or post-consumer waste once it arrives. Ie. Sort first? Launder/cleaning process?

6. What approaches or techniques are used in the remaking of each garment and how are those decisions made?
7. What proportion of the collection is made of upcycled items?
8. Would you describe your sourcing process (collection plan, time, frequency, who is responsible, preferred garments, inventory chart, costing of items etc.)
9. Do you mostly completely remake garments or only add to an already existing garment?
10. How do you determine what care instructions are provided in each garment?
11. How do you determine the amount of time spent on each process? ie. remake, hand-dye, hand-embroider, appliqué, felting, punch machine?
12. Would you describe the production process?
13. How do you use technology at any phase of the value chain? Ie. Apps for sourcing materials, Laser-cutting, 3D Computer Aided Design, Pattern, Marking and Cutting, apps to retail, rent or lease garments?
14. Is there any technology planned for the future? If so, what type of technology and why?
If not, why?

Retail

15. How does the brand promote the 'upcycled factor' as a sustainable alternative to new clothing?
16. How do you retail your collection?
17. How do you wholesale your collection?
18. How does the brand label fibre content and meet CA guidelines?
19. What type of feedback does the brand receive? Any stigma with used /upcycled clothing?
20. What type of packaging is used to deliver the garment to the retailer or consumer?

21. What types of 'value added propositions are in provided for the consumer such as take back programs in exchange for a discount on their next purchase?
22. How would you describe your brand in comparison to your competition? Who is your competition?
23. Could you recount your most enthusiastic customer response to your collection?
24. How responsive are the retail buyers to the brand's upcycled garments?
25. In reflection, what is the biggest success? Challenge?

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Glossary

- Deadstock textiles: are textiles that are left over from the sample making or production phases in the fashion processes. They are also known as end-of-roll textiles (Author's own definition, 2019).
- Fashion upcycling: is a design practice that uses post-consumer or pre-consumer textile waste to create new clothing and accessories, therefore providing textiles with a second life and diverting them from landfills (Binotto & Payne, 2017; Cuc & Tripa, 2017; Fletcher, 2014; Han et al., 2015; Han et al., 2017; Janigo et al., 2017; Vadicherla et al., 2017; Wilson 2016).
- Off-cuts: are the pre-consumer textile waste as a result of the gaps in a pattern marker (Author's own definition, 2019).
- Open source design: Fashion designers sell their patterns and sewing instructions online for the consumer to construct on their own (Niinimaki & Hassi, 2011).
- Post-consumer textile waste: consists of items made with textiles or materials that are discarded by the end user (Keith & Silies, 2015).
- Pre-consumer textile waste: is a result of the excess textile located in between the pattern pieces that are cut from the pattern marker during production (Hawley, 2006; Keith & Silies, 2015).
- Selecting: is described by the participants who practice post-consumer textile upcycling as a phase during the design and production process where the design and production team hand select the vintage items for their collection (Author's own definition, 2019).

- Shibori: is a technique is an ancient Japanese form of resist dying where the textile is manipulated by clamping, twisting, folding or crumpling prior to the textile being dyed similar to tie-dye (Voris, 1999).
- Sorting: is described by the participants who practice post-consumer textile upcycling as a phase during the production process where the production team sorts the post-consumer items by textile fibre, textile weight, colour, shade and the type of garment (Author's own definition, 2019).
- Zero-waste fashion design: is the practice of creating a garment wasting none of the textile typical in standard fashion design and the technique may also be applied to upcycled fashion design (Rissanen & McQuillan, 2016).