

ABSTRACT

CLARY, ALEXIS TAYLOR. Alternative Clothing Disposal Methods: Analysis of the Millennial Participation in Take-Back Programs. (Under the direction of Dr. Karen K. Leonas).

As sustainability is becoming more of a concern in the textile and apparel industry, it is important to understand the roles of brands, retailers and consumers. A major element that has gained recognition in the industry is the large amount of textile and apparel waste. In 2015, 32 billion pounds of textile and apparel waste had been generated by consumers and companies combined. This research focuses on the impact of consumer textile and apparel waste disposal methods. Often times, consumers will discard items to landfills instead of using alternative means. With that said, one alternative disposal method that has developed by brands and retailers are take-back programs. These initiatives have consumers donate clothing at the retail locations as compared to throwing the garments out. Many of the brands then recycle the materials, resell the garments in a separate line, and/or repurpose the items received. Often times an incentive, such as a coupon or discount, is offered to encourage consumers to switch their current disposal method.

In this study, the purpose was to learn how life stage and education affect the willingness of millennial consumers in the US to participate in retailers' clothing take-back programs as a way of diverting disposal of apparel from landfills. The primary focuses were to evaluate the current disposal processes of clothing and identify influences in using alternative means of disposal. A survey was developed to gather demographic information, current garment disposal practices, take-back program awareness and trust in sustainability claims. Demographic variables that were collected, included, gender, household income, employment status, education level, marital status, and parental status. A total of 297 responses were viable for the study. Descriptive statistics were first used to gain a better understanding of the representation within the sample

population as well as the behaviors and beliefs investigated. In addition, a Tukey-Kramer analysis were conducted to identify relationships between the demographics collected and the behaviors evaluated.

The research ultimately revealed that gender was the only demographic variable that indicated a statistical difference on both the clothing disposal behaviors and willingness to participate in take-back programs. The data revealed, in general, there was very little awareness of take-back programs and a lack of understanding of the difference between take-back programs and traditional donation methods. In addition, respondents were negative in the view of honesty behind sustainability claims. When asked to explain the distrust felt regarding the industry, participants explained that they believed many of the sustainability efforts were intended to gain profit or a marketing ploy. With this information, the textile and apparel industry need to analyze how they approach this alternative clothing disposal method. Take-back programs are one way to bring customers back into the store, however, if the consumer is unaware or does not believe the authenticity of the sustainability efforts, the initiative would be unsuccessful. Since gender is the only demographic variable to show statistical difference it is recommended that effective marketing and communication tailored to this demographic variable. In addition, as brands and retailers can use take-back programs as a way to connect with consumers as well as reducing the amount of apparel waste disposed in landfills, more information needs to be provided to build trust with the customer.

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Alternative Disposal Methods: Analysis of the Millennial Participation in Take-Back Programs

by
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DEDICATION

This research is dedicated to my family, thank you for believing in me and encouraging me to further my education. None of this would have been possible without your love and support.

BIOGRAPHY

Ali Clary is a Master's candidate at the Wilson College of Textiles at NC State University. She was born on November 24th, 1995 and raised in Rocky Mount, North Carolina. In 2014 she moved to Chapel Hill, North Carolina to begin her academic career at the University of North Carolina Chapel Hill. After a year at that university, she transferred to North Carolina State University to pursue a degree in Fashion and Textile Management with a concentration in Brand Management and Marketing. She earned this degree in 2018.

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With her aunt and uncle working in the textile and apparel industry, Ali was inspired by their career paths and used them as future goals. She also grew up in a farming family which spiked her interests in sustainability. By being surrounded in such a unique setting, she realized how critical it is to take care of workers and the environment. She developed her curiosity of consumer behavior while working retail and interacting with customers. Watching shoppers' behaviors drove her to study the consumer side of the textile and apparel industry. With all of these interests, she settled on researching consumer behavior with regards to sustainable practices. Ali hopes to encourage the textile and apparel industry to implement more sustainable practices with consumers.

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Finally, I would like to take a moment to thank my parents and family. My mom and dad have been my biggest cheerleaders, always encouraging me. They are the ones that have instilled the work ethic needed for this accomplishment. My family were the ones that convinced me to go on this journey and further my academic career. Their continuous love and support encouraged me in this research and gave me the ability to complete this project. This accomplishment would not have been possible without each that has been mentioned.

TABLE OF CONTENTS

LIST OF TABLES	vii
LIST OF FIGURES	viii
1. Introduction	1
1.1 Introduction.....	1
1.2 Research Question	4
1.3 Purpose Statement.....	4
1.4 Research Objectives.....	4
1.5 Operational Definitions.....	5
1.6 Assumptions.....	5
1.7 Limitations	5
2. Review of Literature	7
2.1 Phenomena Expanding Textile and Apparel Industry	7
2.1.1 Technology	7
2.1.2 Globalization and the Industry.....	9
2.1.3 Supply Chain.....	11
2.2 Sustainability.....	13
2.2.1 Background.....	13
2.2.2 Transparency and Traceability.....	15
2.3 Circular Economy	18
2.3.1 Background.....	18
2.3.2 Application.....	21
2.4 Post-Consumer Disposal.....	22
2.4.1 Waste.....	22
2.4.2 Availability	26
2.4.3 Consumption.....	27
2.4.4 Disposal Alternatives	28
2.5 Take-back Programs	30
2.5.1 Background.....	30
2.5.2 Description.....	31
2.5.3 Retailers and Brands	33
2.5.3.1 Everyday Wear.....	34
2.5.3.2 Footwear	36
2.5.3.3 Outdoors/Athletic Wear	38
2.5.3.4 Initiatives.....	39
2.6 Consumer's Role.....	40
2.6.1 Consumer and Company Relationships	40
2.6.2 Consumer Influences	42
2.6.2.1 Social Media	43
2.6.3 Consumer Participation.....	44
2.7 Millennials	45
2.7.1 Generations	45
2.7.1.1 Millennials	46
2.7.2 Behavioral Habits.....	47
2.7.3 Gender, Education, Life Stages and Sustainable Habits.....	48

2.8 Consumer Behavior Theories	50
2.8.1 Theory of Reasoned Action	50
2.8.2 Theory of Planned Behavior	52
3. Methodology	54
3.1 Problem Statement	54
3.2 Purpose Statement	54
3.3 Research Objectives	54
3.4 Hypotheses	54
3.5 Setting	55
3.6 Participants	55
3.7 Measurement Instruments	56
3.8 Data Analysis	56
4. Results	58
4.1 Sample Characteristics	58
4.2 Research Objective One: Apparel Disposal Practices	63
4.3 Research Objective Two: Take-Back Program Awareness and Influences	65
4.4 Research Objective Three: Life stage	72
4.5 Research Objective Four: Education	75
5. Conclusion	76
5.1 Discussion	76
5.2 Limitations and Future Research	77
References	80
Appendices	94

LIST OF TABLES

Table 1: Events Prompting Sustainability Concerns throughout History	17
Table 2: Company Intended End Use Segmentation	34
Table 3: Generations	46
Table 4: Detailed Sample Demographics	61
Table 5: Clothing Disposal Behavior.....	63
Table 6: Gender and Clothing Disposal Behavior and Beliefs	65
Table 7: Top 10 Brand/Retailer Take-Back Programs	67
Table 8: Consumer Willingness to Use Take-Back Programs.....	68
Table 9: Influence of Incentives on Participation	69
Table 10: Influence of Brand Loyalty.....	70
Table 11: Consumer Trust in Brand and Retailers.....	70
Table 12: Trust in Take-Back Programs.....	71
Table 13: Employment Status, Marital Status, Parental Status and Clothing Disposal.....	74
Table 14: Education Level and Clothing Disposal	75

LIST OF FIGURES

Figure 1: Triple Bottom Line 2
Figure 2: Outline of A Circular Economy 20
Figure 3: Cross Section of a Landfill..... 24
Figure 4: Consumer Decision Process (CDP)..... 41
Figure 5: Maslow’s Hierarchy of Needs..... 42
Figure 6: Theory of Reasoned Action Model (TRA)..... 51
Figure 7: Theory of Planned Behavior (TPB)..... 53
Figure 8: Sample Demographics..... 60
Figure 9: Consumer Brand/Retailer Awareness 66
Figure 10: Reasons Respondents Do Not Trust Sustainability Claims..... 72

1. INTRODUCTION

1.1 Introduction

The textile and apparel industry is one of the largest producers of pollution and waste in the world. Major contributors of this phenomenon are processes such dyeing, finishing, washing and waste as a result of the disposal of textile products and apparel garments. (Pensupa et al., 2017) In 2013 the Environmental Protection Agency (EPA) released data surrounding the municipal waste created by the textile and apparel industry. The EPA found 30 billion pounds of textile waste was created in the US per year. From that amount of waste, only approximately 15 percent was recycled or donated, resulting in about 25 billion pounds of discarded clothing and textile waste end up in landfills every year. (Friedman, 2017; Goudeau, 2014) In 2015, the EPA released an updated report that showed an increase in textile and apparel waste produced, 32 billion pounds. However, only 21 billion pounds were sent to landfills, resulting in the estimating that nearly 35 percent of textiles and apparel waste being recycled. (EPA.gov, 2015) Indicating a decrease in the amount of waste of textile and apparel waste sent to landfill. However, it is important to note there is some conflicting data. This research will specifically focus on the steps consumers are taking to divert products from going to landfills.

Sustainability is a complex concept that encompasses many different facets making it difficult to define. To simplify the complexity of sustainability, the elements are separated into three different sectors or threads. This is often referred to as the Triple Bottom Line (TBL) and includes social, environmental, and economic sustainability or people, planet, profit. (Elkington, 1997) Figure 1 depicts this model and the balance of each category with one another. (Wilson, 2015) In the past, the textile and apparel industry primarily focused on the financial bottom line, looking for the lowest cost with the highest profit margin. However, with the emergence of TBL

accounting, businesses and brands began to change. Firms started adopting this model as sustainability has become a priority. (United Nations, 2005) Eventually businesses adopting sustainable practices have been able to gain a competitive advantage and attract consumers as interest increased. (Raj, Ma, Gam, & Banning, 2017) As consumers are becoming more conscious of purchases and their impacts, they become drawn to the brands and businesses utilizing sustainable practices.

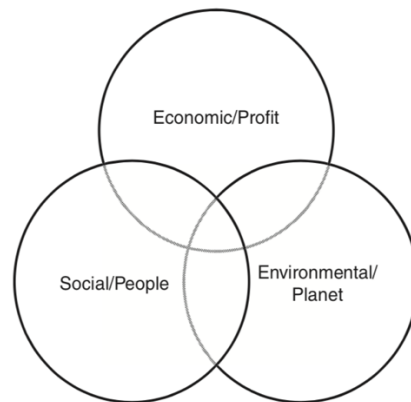


Figure 1: Triple Bottom Line (Wilson, 2015)

To achieve true sustainability, one must understand the concept of sustainable development. This phrase refers to understanding that resources have to be reserved and recycled to ensure that the needs of present do not affect the needs of the future. (Wilson, 2015) This was emphasized by the UN General Assembly of 1987 by stating that “the needs of the world’s poor and the limited resources on Earth to meet their basic needs (food, clothing, shelter, and jobs) must be considered in decision making. (United Nations, n.d.) It draws on both hard sciences and social sciences. Factors such as politics, economics and philosophy influences decisions in regard to sustainability. (Mason, 2019) Within the textile and apparel complex, many brands and

retailers are incorporating strategies in their manufacturing and design process. Strategies include reduction of energy waste, decrease in hazardous chemicals released, alternative dyeing methods, recycling, purposeful design, zero waste pattern cutting. (Quinn, 2015; Carrico & Kim, 2014) However efforts have to be made in every aspect of the supply chain. It is important to transition the mindset of consumer to understand their role in the supply chain and that sustainability requires participation from their behalf. (Cattermole, 2018)

There are many ways consumers can take part in decreasing the negative sustainable impacts of the textile and apparel industry. Two of these are to 1) participate in sustainable consumption and 2) use alternative disposal methods of clothing and textiles. Sustainable consumption is the use of products that support the needs of the present without interfering with the ability of the future to meet their own needs. (Goudeau, 2014) Within the scholarly discipline of clothing and textiles focused on sustainability, a goal is to better understand and change the affect individual buying power has on social and environmental impacts. (Hobson, 2002; Seyfang, 2011)

Alternative disposal methods simply refers to finding alternate ways to discard materials that divert them from landfills. Examples of this include passing items to friends or family, recycling, donating, or swapping. (Rezaei, 2016; Gopalakrishnan & Matthews, 2018) This research will specifically focus on the unique donating method of retailer or brand take-back programs. Textile take-back programs are used by manufacturers, brands or retailers to collect used clothing or other textile related products from consumers. The materials are reintroduced in the supply chain creating a cyclical effect. (World Business Council for Sustainable development, 2018) This is a common emerging trend among retailers and brands that has little research investigating consumer behaviors and the benefits to brands.

1.2 Research Question

As there has been an increase in production in the textile and apparel industry, consumers are purchasing more and there is a rise disposal of textile and apparel products. With more attention on clothing disposal, the overarching research question addressed here, is evaluating what are the clothing disposal habits of millennial consumers. The research primarily focuses on two major problems.

1. The first is to evaluate consumers' habits in the disposal process of clothing.
2. The second is identify consumer motivations in using alternative means of disposal.

1.3 Purpose Statement

The purpose of this study is to learn how life stage and education affect the willingness of millennial consumers in the US to participate in retailers' clothing take-back programs as a way of diverting disposal of apparel from landfills.

1.4 Research Objectives

1. Gain insight on the sustainability practices of the millennial consumer.
2. Learn if millennial consumers would participate in retailers' clothing take-back programs.
3. Evaluate how life-stage or different life milestones affects a millennial consumer's clothing disposal habits
4. Explore how education levels affect a millennial consumer's clothing disposal habits.

1.5 Operational Definitions

1. Millennials: individuals born between 1981 and 1996. For the purpose of this study, the age range is expanded to include those born between 1979-2001; 20-40-year-old individuals. (Valaei & Nikhashemi, 2017) (Solomon, 2016, pg. 428)
2. Take-back programs: business strategy where brands or retailers collect used or discarded products from consumers and reintroduce the material in the supply chain. (World Council for Sustainable Development, 2018)
3. Life stage: marked by the important aging milestones and transitional stages of human development, also marked by transitional life events. (Moschis, Lee & Mathur, 1997)
4. Post-consumer textile and apparel waste: the articles of clothing, footwear, and home textiles disposed by the average consumer after no longer considered useful. (Domina & Koch, 1997)

1.6 Assumptions

1. All participants are truthful in responses.
2. All participants are reading the questions thoroughly and fully.
3. Participants used no outside research to answer the questionnaire.
4. All participants have discarded clothing items before participating in the research.

1.7 Limitations

1. Convenient sample of friends, families, and connections of the researcher to organizations and groups will be used.
2. Only the habits of consumers living in the United States will be evaluated.

3. Responses were limited to surveys that were fully completed.
4. Opened-ended questions vary due to misunderstanding of terminology.

2. REVIEW OF LITERATURE

The purpose of the study is to develop an understanding of how an individual's life stage and education affect the willingness to of millennial consumers in the US to participate in retailers' clothing take-back programs as a way of diverting the disposal of apparel. With that said, several areas of background information are needed to fully understand this issue being researched. This literature review is divided into eight primary sections followed by subsections. The primary eight sections are 1) phenomena expanding textile and apparel industry 2) sustainability, 3) circular economy, 4) post-consumer disposal, 5) take-back programs, 6) consumer's role, 7) millennials, and 8) consumer behavior theories

2.1 Phenomena Expanding Textile and Apparel Industry

2.1.1 Technology

To understand the current industry, it is important to explore how technology has affected the textile and apparel and ultimately increased consumer consumption. The process of producing and selling textiles and clothing dates back thousands of years making it one of the oldest industries as well. (Burns, Mullet, & Bryant, 2016) Initially, textiles were produced by hand and therefore the process was labor intensive. (Kunz, Karpova, & Garner, 2016) Women were traditionally responsible for spinning, weaving and sewing for their families and all processes were done in the home. (Ha-Brookshire, 2017) However, in the mid 1700s, during the Industrial Revolution, the processes began to be mechanized and new technology was developed. Equipment such as the flying shuttle loom, spinning jenny, and cotton gin were created. (Burns, Mullet, & Bryant, 2016) This ultimately developed into the factory-based textile and apparel

industry that we are familiar with today and production was moved from the home. (Ha-Brookshire, 2017)

From the 1900s the apparel industry was very labor intensive and mass production was growing rapidly. Sweatshops were beginning to form as fashion was becoming more of an interest to the average consumer. (Burnes, Mullet, & Bryant, 2016) In the 1960s demand had grown leading to the development of mass fashion. This method focused on mass production and incorporated simple style and sizing systems. (Burnes, Mullet, & Bryant, 2016) In addition, technology began to enter the manufacturing space and automation increased. Through the 1970s and 1980s equipment such as open-end spinning, automatic waste handling, and micro-processor-controlled monitoring entered the landscape. (Johns & et. al, 1987) The main goals of these innovations were to reduce labor in manufacturing, increase quality and increase flexibility in production. These are concepts that are still the goals of many companies today with no consideration of the environmental impact. (Johns & et. al, 1987)

With these new technologies and increased manufacturing speed, fast fashion began to emerge in the 1990s. (Joung, 2014) This is one of the pivotal moments in the industry, completely changing the supply chain. Production has increased and timelines have changed and become shorter. With these developments, fast fashion allowed companies to produce clothing at a rapid rate, introducing new products every week in stores. (Johns & et. al, 1987) While manufacturing increased, businesses were focusing on the solely on the financial bottom line. With the ultimate goal to increase profits, many manufacturers focused on increasing speed, with little regard to the environment and the people working.

Technology began to integrate the lives of the everyday consumer as well, changing the typical shopping behavior. With the introduction of the internet, the beginning of the online retail

space began, introducing ecommerce. Consumers were now able to order items at home and have the goods sent directly to them. In addition, shoppers were seeing trends more frequently, increasing the desire to adapt and buy more. (Morgan & Birtwistle, 2009) With the ability to shop, the convenience of shopping increased, ultimately increasing consumption. This ultimately led to an increase in demand, where consumers were now viewing apparel as a disposable good leading to overconsumption. (Niinimäki & Armstrong, 2013) As consumption increased there was a rise in the disposal of garments, which significantly impacts the environment.

With the integration of technology in the textile and apparel industry there was an increase in the negative effects on the environment as well. As manufacturing increased and new production methods were introduced, there was little regard of the impact on the environment. (Johns & et. al, 1987) In addition, technology inevitably increased consumption when introduced to the everyday lives of consumers. With the introduction of the internet and social media, consumer awareness of trends and new styles eventually increased the desire to buy more items. This created a cycle that increased production which would increase consumer demand. This eventually developed overconsumption leading to more goods being disposed of in landfills. (Niinimäki & Armstrong, 2013)

2.1.2 Globalization of the Industry

A phenomenon of the textile and apparel industry is the worldwide spread of production and globalization. As the industry continued to grow, manufacturers, brands and retailers began to look to produce outside of the United States. Globalization is the process in which economies become intertwined with one another. Nations and people become connected through the integration of outside businesses and firms within the countries. (Burns, Mullet, & Bryant, 2016)

(Kunz, Karpova, & Garner, 2016) This can be accomplished by either moving manufacturing and businesses outside of their domestic region or sourcing materials and production from outside of the home nation. Globalization is also marked as the emergence of a flat world. (Fung, Fung, & Wind, 2007) With that said, the global network that has been established in the textile and apparel industry and is expected to remain an integral part of the market. As a result, these industries are at the forefront of the global economy. (Ha-Brookshire, 2017)

The globalization of the apparel industry began when labor costs increased in the United States, resulting in an increase in cost of clothing. Originally brands tried to combat this cost by opening low overhead, high- volume mass discount stores during the 1960s. These retailers included Walmart, Kmart, and Target. (Burnes, Mullet, & Bryant, 2016) However, by the 1980s, brands and retailers were again, having difficulty meeting the demand for low cost. Companies such as Nike and Liz Clairborne began producing worldwide. (Burnes, Mullet, & Bryant, 2016) This global production strategy stemmed developed the idea to find searching low-cost labor for production to keep up with increasing demand. (Ha-Brookshire, 2017)

Another driver of globalization within the textile and apparel industry was the increase in regulations. From the 1970s forward, stricter regulations were developed when the environmental impact of the industry came to light. Organizations such as Environmental Protection Agency, formed in 1970, and Greenpeace, formed in 1971, drew attention to lack of environmental concern within the textile and apparel industry. (EPA.gov, 2019; Leonas, 2019) Not only were brands and retailers moving to low-cost labor countries, these countries also had little in the way of environmental regulations. Companies were now able to build low cost facilities and avoid strict environmental laws. (Bomgardner, 2018) Areas within China, India, and Bangladesh are examples of regions with few enforced regulations in relation to the

environment and allowed for the release of dangerous chemicals into the public water ways and in the area in general. (Bostrom & Micheletti, 2016) Until recently these also rarely restricted the disposal of waste and in some cases have few enforced restrictions today. Often times there are few recycling programs and waste is simply left in the street. (Claudio, 2007) In addition, landfills began to be built near more populous areas. As the chemicals were released from these “dumps” it began affecting the health of surrounding society and released toxins in the air. (Waste Management, 2003)

2.1.3 Supply Chain

Changes in traditional supply chains is another phenomenon that is often attributed to the change in consumer clothing purchasing behavior. In simplest terms, a supply chain is the “network of materials, information, and services processing links with the characteristics of supply, transformation, and demand”. (Ha-Brookshire, 2017) Throughout the supply chain, many vendor and buyer relationships are working simultaneously. Typically, a buyer receives a product and transforms it into something else before it moves along next stage in the supply chain. (Burns, Mullet, & Bryant, 2016 pg.17) For example, a fiber is given to a yarn manufacturer that spins the fibers into yarns, then the yarn becomes fabric and so on.

As demand for apparel increased and technology was developed, the supply chain drastically changed. With the consumers demand increasing, manufacturing had to develop a system to meet these needs. This has ultimately led to the spread of production and the growth of complex supply chains. In today’s marketplace, supply chains are considered “flat” where the system is wide with multiple members in it. (Fung, Fung & Wind, 2007) This is due to the

integration of technology. With the ability to communicate, track products with RFID codes and fast transparency, businesses are able to develop supply chains connect from across the globe.

Some businesses choose to use a horizontal approach in developing a supply chain.

Horizontal integration is when businesses join with others of similar functions to form one larger business. This is often done through takeovers and mergers. (Kunz, Karpova, & Garner, 2016, pg. 22) This is common in the fiber and yarn industry as many manufacturers will produce multiple variations. One leader in this strategy is INVISTA, who produces multiples types of nylon and has carious fiber finishing processes. (Burns, Mullet, & Bryant, 2016, pg.9)

In the general concept of the supply chain, there are various strategies used to gain a competitive advantage. One approach many businesses use is to vertically integrate the supply chain structure within the firm. In this case the company keeps many or all steps of the supply chain in house. (Burns, Mullet, & Bryan, 2016 pg. 14) By keeping multiple aspects of the production process in one business, lead times are often shortened, there is more flexibility in the supply chain, and there is more control of the quality produced. (Annis, 2008) Typically this strategy is incorporated through the acquisition of a plant or firm that extends outside the existing operations of the business. (Guan & Rehme, 2012) Vertical integration is a strategy that creates more flexibility and control in the supply chain and is often seen in fast fashion companies such as H&M. Brands and retailers are able to respond to consumers' changing demands at a faster rate as compared to the traditional supply chain. (Annis, 2008) Since the stages of planning, design, production and distribution fall under the same company, decisions can be made faster and well as be easily adapted as compared to other supply chains. (Kunz, Karpova, & Garner, 2016, pg. 22) Fast fashion companies are able to adapt and react to consumer demands, meeting needs faster than before and have more control over the supply

chain. The mass-market company Inditex, owner of Zara, is one of the most established vertically integrated companies. (Annis, 2008) With the development of fast fashion, consumer consumption significantly grew. As consumption increased it led to the rise of overconsumption. This inevitably increased the amount of clothing being discarded in landfills. (Joung, 2014)

There has also been a transition in the approach to supply chains. Traditionally, supply chains were proactive, meaning they were making decisions before demand was established. As the industry has moved towards a consumer centric system, the supply chain has moved to a more reactive approach. (Ciarniene & Vienazindiene, 2014) This is a technique many brands and companies are using to keep up with the ever-changing demands of the consumer. Instead of influencing the consumer, but rather react to the customers' needs. (Angkiriwang, Pujawanm, & Santosa, 2014) For example, fast fashion brands use this strategy because they have a constant stream of turnover to meet the peak demand of consumers. (Ciarniene & Vienazindiene, 2014) This is often referred to chasing, where the brand or retailer is chasing the demands of the market. There is usually little inventory and the goal is to reduce leftovers by having the capability to readily change outputs. (Swamidass, 2000) Utilizing a reactive approach eliminates the uncertainty that was often part of a proactive supply chain. (Angkiriwang, Pujawanm, & Santosa, 2014) By keeping up with these needs, consumers continued to purchase more. As more clothing was being purchased, landfill disposal of garments increased. (Joung, 2014)

2.2 Sustainability

2.2.1 Background

It is accepted that the textile industry is one of the most wasteful sectors of the economy. (Pensupa et al. 2017) The industry has had significant impacts on both environmental and social

sectors of the economy. In the 1970s, sustainability in general gained significant recognition and continued to grow in awareness the following decades. (Morgan and Birtwistle, 2009)

Acceptance of the concept of sustainability was established through the incorporation of international conferences and opening the discussion of sustainability. (Jones, 2005; Kalafatis, 1999; Robins and Roberts 1997; Strong 1996) In the 90's and early 2000's approached the textile and apparel industry, brands and manufacturers wasteful production processes this was highlighted through public exposure. Due to the internet, social media and environmental groups, consumers now have more access to information and are creating a stronger sense of pressure from the public on companies. This new sense of demand from the public initiated the most recent push of sustainability in the industry. (Burns, Mullet, & Bryant, 2016, p.97) (Geissing & Laurell, 2016)

However, it can be difficult to define what sustainability truly means. As the concept has become more integrated within the industry, the term sustainable development has been used and in the understanding of the steps to develop a sustainable system. A consensus definition developed by the UN World Commission is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations, 2019) The United States Environmental Protection Agency defines sustainability as "the study of how natural systems function, remain diverse and produce everything it needs for the ecology to remain in balance. It also acknowledges that human civilization takes resources to sustain our modern way of life." (EPA.org, 2019) Essentially the goal of sustainability is to find balance between using resources and preserving resources both environmental and social.

When analyzing environmental sustainability, a primary goal is to reduce harm to the environment through practices such as management of waste, pollution, and conservation of

resources. (Swaim et. al, 2014) Often times this thread is the forefront of sustainability.

Incentives and programs are offered to encourage participation from consumers and businesses to incorporate sustainable practices such as recycling, using renewable resources, and reducing consumption. (Mason, 2019) When looking at it from the perspective of the consumer, the idea includes the contributions in preserving resources and materials through pre-purchase and post-purchase decisions. (Bianchi and Birtwistle, 2010) For businesses, sustainability decisions focus on ways to improve the production process and use of resources. (Mason, 2019)

In 2016 it was found that as an industry, textiles and apparel produce 92 million tons of waste that inevitably ends up in landfills. (Remy, Speelman, & Swartz, 2016) A significant amount of waste stems from the end of life of products. As consumers increase demand in the industry, more and more garments are being produced. With that said, an extreme amount of end consumer waste. In 2013, 95 pounds of textile waste per person was produced in the U.S. alone. Of these 85 pounds went to landfills, when most of it could have been recycled or repurposed. (Friedman, 2017) The main source of solid waste in the textile industry is the clothing disposed of by consumers. Environmental Protection Agency (EPA) estimated that textiles generated 16 million tons of waste was developed in 2015. (EPA.gov, 2018) Of that value about 15% was recycled, a majority of this being clothing and footwear. In the end 10.5 million tons of textile was disposed of in landfills. (EPA.gov, 2018)

2.2.2 Transparency and Traceability

As sustainability has grown in the industry, transparency amongst brands and retailers has also begun to emerge. The textile and apparel industry have increased efforts in protecting the environment and the people involved. This increased involvement began many decades ago,

but since the turn of the century more valiant efforts have been made from brands and retailers. The resurgence of this movement has been attributed to the increase in transparency and accountability demanded by consumers. (Carey, 2018) As the textile and apparel industry has moved from local and regional production, to a globalized industry, clarity in production was lost. Transparency is providing clear information regarding the supply chain of a product. (SJ, 2018) Companies, various organizations and groups have begun to hold businesses accountable for their supply chains. For example, the Environmental Protection Agency and Greenpeace were formed in the early 1970s exposing the lack of environmentally sustainable practices in the textile and apparel industry. These organizations began pushing for legislation and policies to protect the environment. (EPA.gov, 2019; Leonas, 2019)

Transparency has stemmed from the abundance of information given to consumers through social media and the internet. Unregulated events at international manufacturing locations, forced consumers to see the conditions that the textile and apparel industry implements in the supply. Table 1: Events Prompting Sustainability Concerns throughout History lists several landmark incidents that have occurred in the apparel and textile industry. These events were pivotal moments that encouraged the push to focus on environmental and social sustainability.

A major push for transparency began in the 1970s with the formation of the Environmental Protection Agency and Greenpeace. These organizations were driven to bring attention to the practices harming the environment and implementing regulations and policy to insure more sustainable practices. (Palmer, 2017; greenpeace.org, 2015) A second push for sustainability recently occurred with the development of the internet and social media. As consumer had more access to information, brands and retailers were beginning to be exposed for

their practices. One specific event that has recently initiated change is Burberry burning unsold clothing. The brand was exposed for burning \$37 million worth of clothing and cosmetics. Burberry claims the reasoning behind this tactic was to protect the brand’s image and property rights, however, the burning of clothing releases toxins and chemicals. When public attention was brought to this matter, the brand immediately ceased the process. (BBC, 2018) This event brought attention to the widespread practice of burning clothing from not only has Burberry but also brands and retailers such as H&M, Urban Outfitters, and Nike. (Lieber, 2018)

Table 1: Events Prompting Sustainability Concerns throughout History

Year	Title	Description
1970 ¹	Environmental Protection Agency	The Environmental Protection Agency (EPA) was formed to develop policy and regulations to protect the environment
1971 ²	Dirty Laundry Reports	Green Peace began investigating companies and their sustainability efforts. Reports were then released to the public
2011 ³	<i>True Cost</i>	Lucy Siegel released the True Cost documentary that highlighted the pitfalls of the apparel industry
2012 ³	<i>Overdressed</i>	Book by Elizabeth Cline that brought attention to the negative aspects of the fast fashion industry
2017 ⁴	Burberry	Brought attention to the major issue of brands burning unsold clothing to protect the brand

Transparency provides detailed information on companies within the complex supply chain and the concept is often tied with traceability. With this information consumers can identify and trace a product’s raw materials and manufacturing history including distribution,

¹ Palmer, B. (2017, February 4). Why We Need the EPA. Retrieved from https://www.nrdc.org/stories/why-we-need-epa?gclid=CjwKCAiA4Y7yBRB8EiwADV1hafUvHYVCazBJRP02kULYuoNOw7LbMiM4yYsdru_4S6MHKTqbZZ2MBhoCNI8QAvD_Bw

² Leonas, K. (2019). *TTM 591: Events Triggering Sustainability Movement* [Class handout]. Wilson College of Textiles, North Carolina State University

³ Black, S. (2015). Fashion and Sustainability. Retrieved from <https://www.bloomsburyfashioncentral.com/products/berg-fashion-library/article/bibliographical-guides/fashion-and-sustainability>

⁴ BBC. (2018, July 19). Burberry burns bags, clothes and perfume worth millions. Retrieved from <https://www.bbc.com/news/business-44885983>

manufacturing locations, material suppliers. (Agrawal & Pal, 2019) With that said, the public is demanding more information be released and brands and retailers are complying. (James & Montgomery, 2017) After factors such as quality, cost, and performance, shoppers are looking at sustainability and transparency. (SJ, 2018) Through the introduction of the internet, consumers now have the opportunity to research products they purchase and look at production history. (Hutter & Hautz, 2013) While consumers are beginning to see behind the curtain of brands and retailers, they are also asking for more. Consumers not only want more information on where products are being made, consumers also, want information on all the materials, environmental actions, and certifications related to the product and production processes. As sustainability has become more prominent in the industry, brands are using transparency as a tool to connect with consumers.

2.3 Circular Economy

2.3.1 Background

A concept that has stemmed from the development of sustainability in various industries, is the circular economy business model. The goal behind this idea is to keep resources and materials in use beyond their typical end of life stage. (Ellen MacArthur Foundation, 2011) One definition that attempts to encompass the entire concept is “a circular economy is an alternative to a traditional linear economy, which relies on the extract, make, use and dispose model, to one in which resources are kept in use for as long as possible, the maximum value from those resources are extracted while in use, and then products and materials are recovered and regenerated at the end of each service life.” (Cattermole, 2018) Essentially, the take-make-waste

model is discarded and transitioned to a take-make-reuse strategy as an alternative. (Niinimaki & Armstrong, 2013)

A prominent leader in this transition in business models is the Ellen MacArthur Foundation. This organization rethought the supply chain to eliminate waste, reduce consumption of limited resources and incorporate a replenish/rebuild system. (Ellen MacArthur Foundation, 2011) The linear business model is repurposed into a circular system that reuses materials and restore the sources used. (Niinimaki & Armstrong, 2013) The incorporation of a circular economy requires participation from everyone in the supply. Instead of thinking cradle to gate, the notion of cradle to cradle must be the core of the infrastructure. (Cattermole, 2018) The restorative and regenerative system is depicted in Figure 2. The figure outlines the three main principles of the business model and how each element is connected. (Ellen MacArthur Foundation, 2011)

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE 1

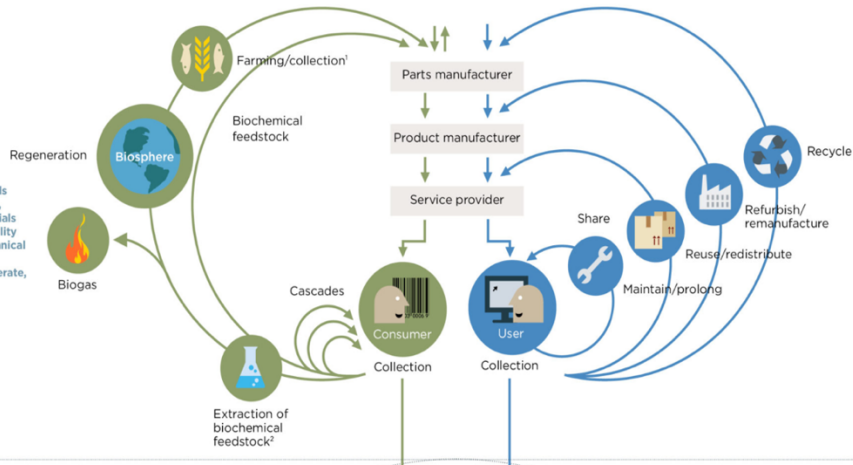
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
 RESOLVE levers: regenerate, virtualise, exchange



Renewables flow management Stock management

PRINCIPLE 2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
 RESOLVE levers: regenerate, share, optimise, loop



PRINCIPLE 3

Foster system effectiveness by revealing and designing out negative externalities
 All RESOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing
 2. Can take both post-harvest and post-consumer waste as an input
 Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Figure 2: Outline of a Circular Economy (Ellen MacArthur Foundation, 2011)

In 2014, circular fashion emerged in Sweden through introductions via H&M and their consultant Dr. Anna Brismar. Dr. Brismar used the idea circular fashion when planning for a fashion event in Stockholm. H&M used the term internally until July 2014 during a public presentation. (circularfashion.com, 2019) Essentially this concept is achieved through long-lasting designs, versatile pieces, and utilizing the 5 R's of recycling, refuse, reduce, reuse, repurpose, recycle. (Khusainova, 2019) According to Dr. Brismar circular fashion can be defined as “clothes, shoes or accessories that are designed, sourced, produced and provided with the intention to be used and circulate responsibly and effectively in society for as long as possible in

their most valuable for, and hereafter return safely to the biosphere when no longer of human use.” (circularfashion.com, 2019)

2.3.2 Application

After understanding the core idea behind a circular economy, it is critical to understand its application in the textile and apparel industry. In the fashion industry, the goal is to create a closed-loop system based off a circular economy that focuses on garments being reused or recycled from the basic of fibers or to other materials. (Vehmas, et. al, 2018) As stated before this is often referred to as circular fashion and ultimately, the goal is to keep products in use for as long as possible. (Cattermole, 2018) This affects every sector in the supply chain, creating a transformational change in mindset to a cradle to cradle model. (Urbinati, Chiaroni, & Chiesa, 2017) Circular fashion has the strongest impact at the beginning and end of the product lifecycle, or the design process and the disposal process. During the product development process, designers have to transition from the minds of low cost, poor quality garments, to apparel that has value and lasts longer. (Ceha, 2017) Due to rapidly changing trends and the lower level of quality, clothing is often considered a disposable good when in reality it is the contrary. (Niinimaki & Armstrong, 2013)

In 2017 the Global Fashion Agenda pledged a commitment to incorporating circularity in the textile and apparel industry. The 2020 Circular Fashion System Commitment outlined four goals to move towards a regenerative system. These points include “implementing design strategies for cyclability, increasing the volume of used garments and footwear collected, increasing the volume of used garments and footwear resold, and increasing the share of garments and footwear made from recycled post-consumer textile fibers.” (Global Fashion

Agenda, 2019) Through this initiative, 213 goals, found in appendix B, were established for participating members to strive for change. This movement is supported by 90 signatories of brands and retailers representing 12.5% of the global fashion market. (Chua, 2019) Brands and retailers such as H&M, Gap, Eileen Fisher, Nike, PVH, and VF are some of the supporters for this commitment. (Global Fashion Agenda, 2019) Although this initiative, established 213 goals to achieve, only 45 of the targets were actually met by the 90 members collectively. (Chua, 2019)

2.4 Post-consumer disposal

2.4.1 Waste

As stated before, the textile and apparel industry in one of the most wasteful market segments with consumer disposal habits being a major contributor. (Pensupa et. al, 2017) Consumers dispose of apparel for many reasons including poor fit, outdated style, garment being worn out, or simply cleaning out closet and wanting something new. (Joung & Park-Poaps, 2011) Part of this is due to the way clothing is thought of in consumer minds. With the increase in availability and the rise of fast fashion, clothing is now considered a disposable good by many consumers, which is greatly affecting the amount of waste produced. (Morgan & Birtwistle, 2009) However, consumers are beginning to recognize the impact of their actions and a decrease in the amount of clothing thrown away in landfills is decreasing. According to a report published by the Federal EPA in 2013, approximately 25 billion pounds of post-consumer textile waste was discarded in landfills. (Friedman, 2017; Goudeau, 2014) On average, 95 pounds of textiles are produced in the US per person per year. Of that produced, 81 pounds of textiles are thrown away per person and end up in landfills annually. (Friedman, 2017) In 2015, the EPA released an

updated report that indicated an increase in waste produced, but more was diverted from landfills. In fact, 32 billion pounds of textiles waste were produced, while 21 billion pounds were sent to landfills. (EPA.gov, 2015) As not all textile and apparel waste are sent to landfills, the primary disposal method is tossing the items out in the trash.

Primary disposal of goods in landfills is problematic as landfills are specifically designed to prevent items from degrading. Figure 3: Cross-Section of a Landfill shows the complexity of the landfill system. First a flexible membrane is placed at the bottom of the landfill to reduce contamination of groundwater. Under that layer there is two feet of packed clay to further secure the groundwater. (EPA.gov, 2018) These bottom layers create the composite liner system. Following this system comes the leachate collection system. A pipe system is placed in the landfill, then a filter geotextile, and then the leachate collection layer. (Waste Management, 2003) Then the landfill begins, where items are collected and stored. Each day a cover is placed over the waste that was disposed of in the landfill. (EPA.gov, 2018) When the landfill becomes full, another composite system is placed over the waste. This system consists of compacted clay, a membrane liner and a drainage layer. The last layer is a protective cover consists of a protective core cover, topsoil and then vegetation. (Waste Management, 2003)

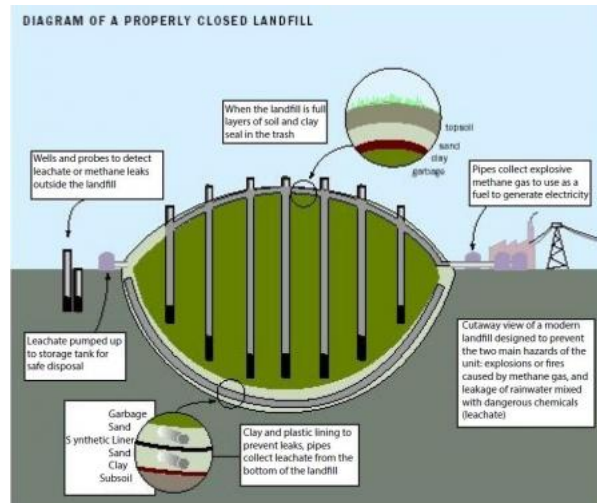


Figure 3: Cross Section of a Landfill (epa.gov, 2018)

Consumer's clothing disposal habits have a lasting affect that many do not recognize. The lack of acknowledgement has led to a number of textile products sent to landfills that could have been repurposed. (Morgan & Birtwistle, 2009) However, some consumers do recycle used textiles and apparel. The actual recycling of textile products can be a challenging process as the integration of multiple materials in a single product makes it difficult for garments to be deconstructed and separated into recyclable components. (Janigo, 2011) Products are often made with synthetic and natural components, which have very different decomposition processes. However, most textiles can be recycled in some form or fashion which can significantly reduce the environmental impact. As sustainability has become more of a concern for many consumers, there has been an increase in the amount of apparel and textiles diverted from landfills. In fact, over 65 percent of textile and apparel waste was discarded in landfill in 2015 as compared to approximately 85 percent in 2013. (EPA.gov, 2015; Friedman, 2017)

As alternative clothing disposal methods have increased the concepts of recycle, upcycle and downcycle are becoming more common throughout the textile and apparel industry.

Businesses are using these methods as an opportunity to make a profit twice off of an item. (Wicker, 2019) In simplest terms, recycling is the process of turning a product into another item. (Leblanc, 2019) An example of this process would be Unifi breaking down plastic bottles and using the chips to develop synthetic yarns. Upcycling and downcycling are two types of recycling. Upcycling is turning a discarded item and creating a product of higher value. Eileen Fisher uses an upcycle process to repurpose damaged apparel into new pieces. (Wicker, 2019) Finally, downcycling is taking a product and breaking it down to lower value items. Taking scraps or discarded textiles and turning them into wipers is a common example of this recycling method.

Many brands and retailers are making commitments to reduce the number of products sent to landfills from themselves as well as consumers. This done by altering the production process as well as working with consumers in diverting disposal of products in landfills. One brand, Inditex, has stated that no garment from the company will be sent to landfills by 2020 through these strategies. (Spencer, 2018) In addition, some brands are looking at incorporating circular fashion models to reduce the number of products sent to landfills. In H&M's 2016 Sustainability Report, the company set goals for 2020, 2030, and 2040 to fully incorporate a circular business model. (Scarano, 2017) Initiatives that connects with the consumer that companies have integrated in their business model include repair services, take-back programs, resell opportunities and recycling services. For example, Patagonia, will repair a damaged garment if returned, resell a donated product, or repurpose items that are returned after use.

2.4.2 Availability

A major contributor to the increase of garments in landfills has been attributed to the development of fast fashion and the increase in availability of clothing. (Morgan & Birtwistle, 2009) This relatively new business model originated in Europe with brands such as Zara and Topshop. The model utilizes a reactive supply chain, that is vertically integrated, or one where suppliers are in close proximity. (Ciarniene, & Vienazindiene, 2014) This in turn creates flexibility and increases speed to market. The model gained popularity as retailers saw significant success in the new strategy. Brands like H&M, Forever 21, and Uniqlo opened in Sweden, the US, and Japan. (Burns, Mullet, & Bryant, 2016) The idea behind fast fashion is to produce low priced clothing at a rapid rate. (Kim & Kincade, 2009) The values of the model focus on short product life of trendy items that are inexpensive and disposable. (Moon, Lee, & Lai, 2017)

The fast fashion strategy focuses on supply chain models that are reactive and have short selling cycle periods. (Byum & Sternquist, 2008; Morgan & Birtwistle, 2009) These brands have developed the concept of constantly looking for the next trend. (Niinimaki & Armstrong, 2013) These retailers are often associated with “high volatility, low predictability, short product life-cycles and high volume of impulse purchasing.” (Hvass, 2014) These new expectations began transitioning the mindsets of consumers. As a result, there has been an increase in the stigma of impulse shopping, looking for price over quality. (Morgan & Birtwistle, 2009) Consumers are now conditioned to look for price over quality and are losing attachment that is often associated with clothing. (Niinimaki & Armstrong, 2013) In addition, consumers are also consuming more. With low priced items, shoppers have more room in the budget to buy other goods.

2.4.3 Consumption

In 2013, the U.S. consumer purchased twice as much clothing as compared to 20 years previously. (Koch, 2013) According to a 2017 McKinsey report, the world now consumes 100 billion pieces of clothing a year. (Amed, Berg, Brantberg & Hedrich, 2016) This is in part due to the rise of the fast fashion industry. The concept of fast fashion was developed to increase availability of clothing to consumers and follow the quickly changing trends in the industry. To meet these needs, the supply chain of fast fashion companies acts in a reactive manner as compared to a proactive approach. This enables the fashion companies to produce clothing every four to six weeks as compared to year long process before. Ultimately, brands and retailers are responding to events or trends rather making decisions beforehand. (Ciarniene, & Vienazindiene, 2014) With such a quick turnaround time, this business model the quality and lifespan of the garment decreases, and the value attachment of clothing is lost. The decrease in these factors has resulted in consumers discarding clothing as a perishable good rather than a durable good. (Niinimaki & Armstrong, 2013) With this mindset, more clothing is discarded in landfills.

When understanding the fast fashion conundrum, it is important to analyze the consumers' participation in the retail experience. As the industry has switched to a pull system as compared to a push, retailers and brands are trying to produce more to keep up with demand. (McNeill & Moore, 2015) A key element to fast fashion models is that new products are introduced in small quantities. (Burns, Mullet, & Bryant, 2016) This ultimately changed consumer attitudes to a culture of impulse buying, always on the search for something new. Consumers began purchasing more, because the products could very well be replaced in a week. (McNeill & Moore, 2015) Consumers are also justifying new purchases for events and special occasions. With clothing be readily available, consumers are developing a fear of being caught

wearing the same outfit twice. (Chua, 2019) Essentially as consumers demand more, retailers and brands produce more, as more is produced consumers continue to demand for new items. (Joy, et. al, 2012) This cyclical system has increased the amount of clothing purchased and disposed.

2.4.4 Disposal Alternatives

As consumers become more aware of the impact their actions have on the environment, alternative means of clothing disposal have developed. Consumers are faced with options to discard, donate, trade, reuse, or sell the unwanted item. With discarded clothing and textiles, there are a number of strategies to divert these goods from the landfills. This includes recycling, re-use, repair repurpose and redesign to avoid putting garment in landfills. (Black, 2008; Fletcher, 2008)

One strategy that has been common among consumers for many decades is the use of second-hand clothing. An entire market has been developed of second-hand clothing with the development of resale strategies and thrift and donation services. (thredUP, 2019) Simply put, second-hand clothing is the consumption of all used apparel. (Baker, 2011) This method has increased the number of consignment stores, thrift stores, and boutique business models. (Gopalakrishnan & Matthews, 2018) In fact, as of 2018 there are more than 25,000 resale stores, consignment boutiques and not for profit resale shops in the United States. (United States Census Bureau, 2018)

Consumers are often attracted to this method of shopping due to the lower prices, wide range of products, unique options and products of higher quality. (Gopalakrishnan, & Matthews, 2018) Approximately 16-18% of Americans shop any form of a thrift store. In addition, 12-15% shop at consignment/resale shops specifically. This indicates that there is a market for this retail

strategy. Examples of retailers that use resale strategy include Poshmark, thredUP, Plato's Closet, Goodwill and other thrift or consignment store type of retailers. (United States Census Bureau, 2017)

Recycling is an additional strategy to reduce the amount of textile waste consumers put into the environment. Consumers do participate in recycling behaviors; however, a very low percentage of shoppers are actively engaged. (Ha-Brookshire & Hodges, 2009) With this strategy, the goal is to repurpose a discarded garment into an alternate value-added product. Types of recycling include, upcycling, repurposing other garments, recycling garments into wipes, and transforming textiles and garment into a non-apparel good.

Retailers are also investing in the recycling of textiles and apparel. As stated before, it is often difficult to recycle textile and apparel products. This is due to the challenge of separating the mixed components of a garment. (Morgan & Birtwistle, 2009) However, new technologies have been developed to create greater ease in the recycling process that retailers, brands and manufacturers have access to as compared to consumers. Brands such as Nike and Patagonia are recycling materials from production as well as discarded apparel and footwear to make new products.

Take-back programs are another alternative form of apparel and textile disposal. This strategy is a way for both the consumer and the brand or retailer to work together in sustainability. This research will specifically look at this method of disposal and evaluate the participation of consumers.

2.5 Take-back programs

2.5.1 Background

As consumers are becoming more sustainably conscious in their behavior and more are looking to donate clothing rather than discarding in landfills. (Baker, 2011) The World Business Council for Sustainable Development found that 96 percent of Europeans have a personal value of protecting the environment and 25 percent of American adults focused on the environmental issues surrounding them. (Joung & Park-Poaps, 2011) With more clothing being donated to models that differ from using traditional charities, the resale market continues to grow. (Chua, 2019) This has ultimately become an opportunity for brands and retailers to connect with consumers after the purchase decision.

Sustainability is integrated in the textile and apparel industry and consumers' everyday lives, the realization that participation from every aspect of the supply is required to be effective. A major market that has stemmed from the concept of sustainability and increasing longevity of goods is the resale market. (Chua, 2019) In 2018 56 million women purchased secondhand products as compared to in 2017 where only 44 million women participated. (thredUP, 2019) Often times consumers find this method of consumption as a way to find unique products that are of quality. (Gopalakrishnan & Matthews, 2018)

An emerging trend among many retailers is the integration of take-back programs in the brand's business strategy. (World Business Council for Sustainable Development, 2018) This idea follows the concepts of a circular economy and increasing the longevity of clothing. It incorporates the model of take-make-reuse rather than take-make-dispose. (Niinimaki & Armstrong, 2013) In 2016, nearly 1750,000 garments were collected by retailers through take-back programs (Friedman, 2017) Retailers are the closest connection consumers have to the

textile and apparel supply chain and require a transformational change of mindset from both parties. A consumers and retailers have to acknowledge this connection to create a fully circular system.

Take-back programs are a unique donation method for second-hand clothing. For take-back programs to be successful a trust has to be formed between the retailer and the consumer. In the past year, due to the rise of Marie Kondo method, there has been a significant increase in clothing that is discarded. (thredUP, 2019) The Marie Kondo method is an organizational system where consumer go through their goods and evaluate the purposes, value and attachment of the products. (Chua, 2019) As consumers are focusing more on the purpose and value of goods, there has been an increase in the amount of goods discarded, but also an increase in the amount of goods recycled, donated, or repurposed. The amount of textile and apparel goods discarded in landfills decreased from 25 billion pounds in 2013 to 21 billion pounds in 2015. (EPA.gov, 2015; Friedman, 2017; Goudeau, 2014) This could indicate that there is a transition of sending less products to landfills.

2.5.2 Description

Take-back programs are a system of having a product returned to the original brand or retailer when the consumer is ready to discard the good. This strategy was first seen in the pharmaceutical industry, where consumers can return unused drugs. (United States Government Drug Enforcement Agency, 2019) With the success of this initiative apparel retailers and brands saw an opportunity. In the textile and apparel industry take-back programs are an alternative disposal method of clothing where consumers bring discarded clothing to retailers and may receive a small incentive such as a discount on next purchase or coupon. (World Business

Council for Sustainable Development, 2018) For example, Patagonia's program uses the incentive of \$20-\$100 per item donated through the take-back program. (Friedman, 2017) These programs are intended to connect both the retailer and the consumer in the disposal process.

The alternative disposal method has been around for many years as innovative companies began integrating these programs in their business models. In fact, Nike ReGrind program celebrated its 25th anniversary. (purpose.nike.com, 2019) However, this alternative disposal method is gaining more recognition and becoming part of the emerging resale market in the apparel industry. (Salfino, 2018) The products are either recycled and broken down to basic structures or resold after being fixed and cleaned. Some of the major competitive advantages, include increased brand loyalty, brand image, store traffic, and improved corporate social responsibility. (World Business Council for Sustainable Development, 2018)

This collaboration between retailers and consumers offers significant benefits. The relationships can build a stronger relationship between the two parties, lower cost of goods that are secondary material supplies, reserves the use of raw materials, reduce hazardous chemical materials, and ultimately reduce the impacts the industry has on the environment. (Circular Economy Practitioner Guide, 2018) Take-back programs also offer a way to get consumers into the store. When consumers are going to donate items, they are likely to look around, possibly resulting in a purchase. Through the development of fast fashion, impulse buying has significantly increased in the apparel industry. (Leung, Yee, & Lo, 2015) With this attitude prominent in the industry, brands and retailers can use take-back programs as an opportunity to increase impulse buying while simultaneously reducing waste sent to landfills.

As these take-back programs have begun to integrate into the textile and apparel industry, some challenges that have occurred. One obstacle that many companies have faced is building

trust with the consumer. Brands such as Burberry and H&M have been caught burning excess clothing. Both of these events were trending on social media, causing consumers to lose trust in the integrity of the brands. (Siegle, 2018) As a side effect of the brands being caught burning product, consumers now distrust what retailers and brands are actually doing with the goods collect through these take-back programs.

2.5.3 Retailers and Brands

With this emerging trend retailers have seen the positive effects of these unique means of disposal. In fact, this marketing tool has integrated itself amongst multiple zones in the price hierarchy of the industry. Price zones are a way to categorize apparel companies based on price, designer influence, and materials used. (Burns, Mullet, & Bryant, 2016; Kincade & Gibson, 2010) Mass or budget pricing is the foundation of the hierarchy followed by moderate, better, bridge, and designer pricing zones. (Kincade & Gibson, 2010) For example H&M would be a company that incorporates a take-back program that is considered in the mass or budget price zone. In contrast, Eileen Fischer is a luxury brand that has been a leader in the industry for take-back programs. However, for the purpose of this research, the retailers and brands will be segmented based on end use. These groupings categorize clothing by their intended end use or purpose. For example, everyday wear would be clothing worn every day and outdoor wear would be garments used to protect from the elements. Below is a chart that organizes the retailers and brands discussed based on intended end use of most of their products.

Table 2: Company Intended End Use Segmentation

Intended End Use	Company
Everyday Wear	Eileen Fisher, H&M, American Eagle/Arie
Footwear	Nike, Timberland, Vans
Outdoor/Athletic Wear	The North Face, Patagonia

With that said, circularity initiatives and closing the loop programs have emerged in each category of the apparel industry. Take-back programs have specifically entered several levels of the system including casual wear, footwear and outdoor/athletic wear. The retailers and brands that participate in some sort of take-back program include Nike, H&M, Levi Strauss, Patagonia, Madewell and Eileen Fisher. As stated before, for true sustainability to take place, participation from the entire supply chain must occur. (Rands & Starik, 2009) To help initiate this transformational change, leading brands Patagonia, Nike and Eileen Fisher have discussed the importance of tracking and incorporating sustainability efforts. (Levin, 2015) To further understand the different approaches to take-back programs an analysis of select companies representing each sector categories follows.

2.5.3.1 Everyday Wear

2.5.3.1.1 Eileen Fisher

One of the major advocates for take-back programs is the luxury brand, Eileen Fisher. The company incorporates intentional design in mind and uses materials that will increase the longevity of the product. The brand claims that, for them, it is important to develop garments that last and can be worn over and over again. (Quinn, 2015) Eileen Fisher has acknowledged the barrier of competition has prohibited change in the industry. (Levin, 2015) The designer claims that incorporating these take-back programs, a unique competitive advantage developed as a

result. (Quinn, 2015) Eileen. Fisher uses the worn clothing that is donated, and it is redesigned into other garments or home textiles. Garments that are in wearable condition are deep cleaned and marketed in the Renew line. The brand has named its program Waste No More. (eileenfisher.com, 2019)

2.5.3.1.2 H&M

H&M is a fast fashion retailer that created their *Garment Collection Program* as a tool to create a more sustainable future. The in-store global initiative takes clothing or textiles from all brands in any condition. The textiles are then sent to the closest recycling plant to be sorted. (ww2.hm.com, 2019) Bins have been placed in 4,200 stores worldwide and is continuing to spread. Slogans such as “Shred it into fibers and stitch into something new” and “Let’s tear your jeans into pieces and make new jeans out of them” have been tools to encourage consumers to participate in this initiative. In return for the customers donation, the participant will receive a 15% off coupon per bag dropped off. (Matteis & Argo, 2018) With the slogan “Be a Fashion Recycler” H&M is working to encourage consumers to keep clothing and textiles in use as compared to tossing them out. (ww2.hm.com, 2019)

2.5.3.1.3 American Eagle/Aerie

American Eagle is one of the many brands and retailers that works with Cotton Incorporated in the *Blue Jeans Go Green* campaign. (bluejeansgogreen.org, 2019) These other brands and retailers will be discussed later on. Through this initiative, consumers can bring in old jeans, and they are then recycled into home insulation. As an incentive, participants receive \$10 their next pair of jeans. (blog.ae.com, 2019) The sister brand Aerie, is also taking a role in the

recycling of old clothing. The brand accepts donations of used bras and partners with Free the Girls. Every bra donated will help create a better life for sex trafficking survivors. As an incentive to encourage consumer participation, a 15% coupon for your next Aerie bra purchase is given for every donation. (ae.com, 2019) The program is geared to support women empowerment and sends the bras to less developed countries such as El Salvador and Costa Rica. This campaign was established in May 2018 but did not gain recognition until 2019 when it went viral through Twitter. (VanSchmus, 2019) These two companies are examples of brands in the better price zone that are working to incorporate take-back programs.

2.5.3.2 Footwear

2.5.3.2.1 Nike

A better priced brand, Nike, developed *Nike Grind* to recycle athletic footwear and surplus manufacturing scraps. (nikegrind.com, 2019) Their slogan “More performance. Less waste.” embodies the vision of Nike to create a future of zero waste. The goal is to develop a circular infrastructure that eliminates waste. Nike’s chief sustainability officer, Hannah Jones, explained how the program is reframing how to think about waste. (Kauffman, 2016) The brand recycles materials such as rubber, foam, fiber, leather and textile blends and incorporates them into performance products such as new footwear and apparel. (nikegrind.com, 2019) The reusable shoe program grinds the rubber, foam and fibers into new products. Some are new shoes, while other products developed are playgrounds, tracks, and gym floors. (Kauffman, 2016) This program has seen significant success and celebrated its 25th anniversary this year. Originally the program’s purpose was to collect shoes to repurpose them into basketball courts.

(purpose.nike.com, 2019) Today, the program is a global initiative that has impact beyond the sports industry and recycles shoes, plastic bottles, and manufacturing scraps. (Kauffman, 2016)

2.5.3.2.2 *Timberland*

Timberland is a subsidiary of VF Corporation and has established a take-back program. The program, *Second Chance*, is currently only found in Europe. The campaign takes shoes donated by consumers and sends them to Triad. This organization resells the footwear and donates the money earned from the sales to various charities (sustainability.vfc.com, 2019) Triad sorts the donated goods and viable products are placed in charity shops. In addition, some of the money generated from these shops is donated to improving the conditions and practices of the textile and apparel industry. (timberland.co.uk, 2019) At as of this writing, 4,000 pounds of footwear has been donated to the Second Chance program sponsored by Timberland.

2.5.3.2.3 *Vans*

Another VF subsidiary that is incorporating take-back programs in their business model is Vans. In 2018, Vans implemented a take-back program in 10 stores in California. Consumers can donate unwanted footwear to their *Skate and Donate* program as a way to extend the life of the product. (sustainability.vfc.com, 2019) The shoes can be returned in any condition and will be used to either through a recycling process or reused. The program has spread to Europe, where eight stores have incorporated the *Skate and Donate* program. As an incentive in the European stores, consumers who donate receive a 10% discount on purchases of €100 or more. (van.uk, 2019) After a year in place, Vans has received 1,000 pounds of donated footwear. (sustainability.vfc.com, 2019)

2.5.3.3 Outdoors/Athletic Wear

2.5.3.3.1 The North Face

The *Clothes the Loop* campaign is The North Face's strategy for implementing a take-back program. The brand collects clothing and shoes from any brand, in any condition at stores, and the participant will receive a \$10 off coupon for a purchase of \$100 or more.

(thenorthface.com, 2019) As another subsidiary of VF, the program was established in 2014 as a way for VF to measure consumer participation. Through the *Clothes the Loop* campaign, the North Face has diverted 71,000 pounds of apparel and footwear from landfills since 2014.

(sustainability, vfc.com, 2019) The items that are collected are sent to Soles4Souls whose mission is to "create sustainable jobs and provide relief through the distribution of shoes and clothing." The goal of this campaign is to close the loop and reduce the environmental impact of a product through all stages of its life. The program has expanded its outreach to an international level in 2016 and since has been implemented in Germany and Canada. (thenorthface.com, 2019)

2.5.3.3.2 Patagonia

Worn Wear is one of Patagonia's strategies to divert clothing and footwear from landfills. The line refurbishes clothing sent in by consumers to create a new line of vintage and unique gear. (wornwear.patagonia.com, 2019) The program is similar to Eileen Fisher's *Renew* line, where apparel if still useable, is cleaned and resold. The line is advertised as vintage Patagonia. Another strategy Patagonia uses to divert clothing discarded in landfills is a repair service. This program will fix minor damages including zippers, holes, and tears. Any item can be sent back, no matter when purchased or the condition. (Engle, 2018) In addition, Patagonia started *Common Threads Garment Recycling Program* in 2005. Initially the program only collected used

Capilene base layer garments from customers which was processed to create rPET. *Capilene* a next-to-skin layer used in Patagonia's clothing that helps the wearer stay warm in cold weather. The PET layer is fast drying and wicks moisture to remove water from the body. (patagonia.com, 2011) Now the program takes back any Patagonia product. Items can be dropped off in-store or mailed; the products are then sent to their Reno Service Center. Overall, the initiative focuses on the core concepts of reduce, repair, reuse, recycle and reimagine. (patagonia.com, 2011) The brand focuses on implementing a product lifecycle management strategy that encompasses the end of life of clothing as just opposed to when it leaves the store.

2.5.3.4 Initiatives

2.5.3.4.1 Blue Jeans Go Green

One program that has helped many brands and retailers incorporate take-back programs in their marketing strategy is the *Blue Jeans Go Green*. This initiative is a denim recycling program developed by Cotton Incorporated that brings multiple brands of various price zones together to recycle for a cause. As a national campaign, the initiative encourages retailers and consumers to close the loop of the textile and apparel industry and divert products from landfills. The denim is collected and upcycled into *UltraTouch Denim Insulation*. (bluejeansgogreen.com, 2019) The upcycled product is then used to provide insulation in communities in need and public infrastructures such as libraries, schools and hospitals. (levi.com, 2019) The program has been successful as has manufactured more than four million square feet of insulation as of 2018. (Salfino, 2018)

The program began in 2006 when Cotton Incorporated set the goal to help divert clothing from landfills, specifically denim. Over the years the company has built partnerships with many

brand and retailers that are across multiple pricing zones. These companies include Levi Strauss, Madewell, Rag & Bone, O.N.S, Wrangler, American Eagle, Ariat, J. Crew and Zappos. (Salfino, 2018) The program has also built connects with many universities and communities, to encourage student involvement for the cause. For example, Cotton Incorporated kicked off the new collaboration with Zappos at the Denim Days Festival in New York City. This was an opportunity to take the *Blue Jeans Go Green* campaign directly to the consumer. (Salfino, 2019) Through these initiatives, about 2.4 million pounds of denim were donated as compared to discarded in landfills as of 2019. These donations have led to over 4,830,00 square feet of insulation produced and used in communities. (bluejeansgogreen.org, 2019)

2.6 Consumer's Role

2.6.1 Consumer and Company Relationships

A genuine sustainable strategy cannot be successful without considering the consumer as part of the supply chain. (Wilson, 2015) Over the past few decades, the consumer has gained more power in the industry. Beginning in the 1980s, the textile and apparel industry began moving from a push to a pull marketing system. (Burns, Mullet, & Bryant, 2016) This has been a transformational change coinciding with the emergence of consumer centric business models. Understanding consumer behavior is of increased importance due to the transition in focus. Brands and retailers must conduct and implement research to understand consumer behaviors. Consumer behavior is the process of understanding the select, purchase, use or dispose of product or services that are necessary to make decision. (Solomon, 2015) The results can then be applied to develop a marketing strategy that is better suited for today's shoppers.

Studying consumer behavior is an ongoing process that is between the consumer and brands and retailers. The consumer decision process are the steps an individual must take to make a purchase decision. Consumer Decision Process (CDP), presented by Blackwell, breaks this model into seven steps as seen in Figure 4. (Blackwell et. al, 2006; Watson & Yan, 2013) The process is divided into three phases; pre-purchase (steps one-three), purchase (step four), and post purchase (steps five-seven). (Solomon, 2015) Although this process is modeled in a linear fashion, the method is continuous. The post purchase decisions affect need recognition and views of the brand or retailer.

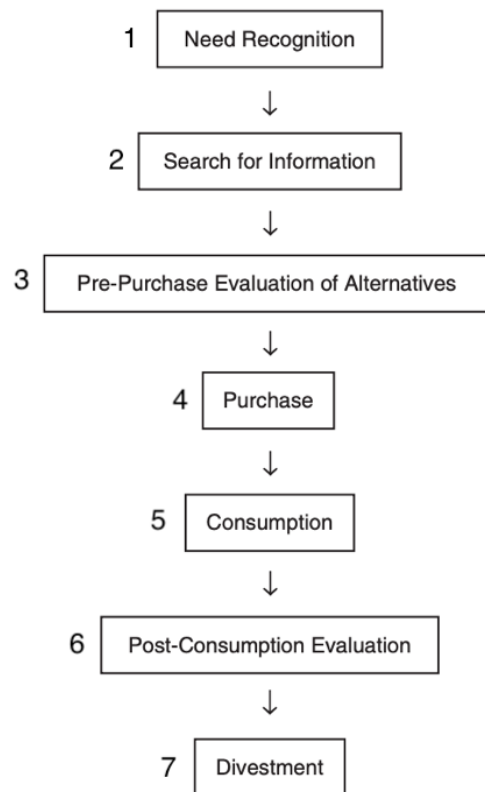


Figure 4: Consumer Decision Process (CDP) (Blackwell et. al, 2006) (Watson & Yan, 2013)

As this change grew, a conversation began between retailers and brands. This communication continued to expand as technology, and the internet emerged in the industry. (Geissinger & Laurell, 2016) While technology has become more prevalent in the everyday life of consumers, it can encourage the sense of looking for the next best thing. Consumers are moving away from wanting basic products and are looking for new and improved items. (Joy, et al, 2012) Technology has given customer access to more brand and retailer information, product information, and pressure from peers. (Jose, 2017)

2.6.2 Consumer Influences

When a consumer makes any decision, there are multiple factors that influence and drive the choices made. Both internal and external considerations hold value in the options presented. Abraham Maslow created a model to understand the growth of personal needs. (Solomon, 2016) The theory depicts the stages of needs one goes through to achieve the most valued experience. It is often used to help marketers understand how to better reach and communicate with the consumer. (Gunelius, 2014) Figure 5: Maslow's Hierarchy of Needs depicts the model. (McLeod, 2018)



Figure 5: Maslow's Hierarchy of Needs (McLeod, 2018)

The theory is modeled into a pyramid with 5 levels of needs; physiological, safety, social, esteem, and self-actualization. The first level is the physiological needs that are the foundation for a consumer. These needs included include food and water to keep the body functioning. This is often what triggers a purchase decision. (D'Souza & Gurin, 2016) The next layer of the pyramid acknowledges the safety ones needs to feel with a purchase. This considers the protection and stability one needs. (Harrigan & Commons, 2015) The social level refers to the needs where one feel acceptance by others. This level heavily relies on the opinions of one's peers and family. (Solomon, 2016) Esteem is the layer that feeds into the consumer's ego. It builds one's prestige or status leads to the development of confidence. (Harrigan & Commons, 2015) The top of the pyramid is the highest level of needs. This level is where one experiences self-actualization, meaning one has found fulfillment with experiences and decisions. (D'Souza & Gurin, 2016) With this understanding of the five basic needs of humans, it is critical to understand how consumer behavior has changed with technology, education, and growth and development.

2.6.2.1 Social Media

One of the most influential aspects on a consumers' life today is the social media presence today. Through the development of technology, more information is at the hands of the consumer. As technology has become more integrated in the everyday life of individuals, social media platforms began to form. This phenomenon has led to the concept of social commerce, meaning consumption carried out through social media platforms. (Jin & Ryu, 2019) Examples of these platforms where consumers can post the best version of themselves include Instagram, Snapchat, Twitter and Facebook. With that said, individuals often feel as if they cannot be seen

in the same outfit twice. (Chua, 2019) In addition, social media is a way to validate self-esteem and group membership from peers. With the more likes, confidence and acceptance increases. (Nash, 2019) This helps individuals reach. The fourth tier of the Maslow's Needs Hierarchy.

2.6.3 Consumer Participation

While consumers are demanding more from retailers, it is important for brands to understand their role consumers have in the entire process. As stated before, for apparel to truly be sustainable it requires participation from everyone in the supply chain, including consumers. (Cattermole, 2018) The buying behaviors of consumers are critical to the development of a sustainable product. The buying process includes pre-purchase, purchase, and post-purchase decisions. (Janigo, 2011) In addition, consumers have to understand their role in this process and how their actions affect the environment as well.

As consumers are increasingly aware of the impacts their purchasing decisions have on the environment, sustainable products are becoming more popular by demand. (Lou, 2016) In addition, consumers are engaged in recycling efforts. The dilemma that the textile and apparel industry face, are the challenges of transition the mindset of consumers that garments can be recycled like the other products that are traditionally recycled. (Bianchi & Birtwistle, 2010) As recycling has increased alternative disposal methods have emerged. Second-hand clothing options and the resale market are on the rise. (thredUP, 2019)

In recent years, consumers have become more environmentally and ethically conscious of the products they are purchasing. According to Sender (2017), a Mintel report found that 44% of millennials wish for more environmentally conscious clothing. In addition, the emergence of sustainable consumption has risen. The primary goal of sustainable consumption is to reduce the

quantity of goods bought and sold, and support products that have social and environmental efforts associated with them. (Janigo, 2011) This supports the core concept of sustainability; meeting the needs of the current world without compromising the ability of the future to meet their needs. (Morgan & Birtwistle, 2009)

2.7 Millennials

2.7.1 Generations

Each generation generally has a specific mindset when they are making their purchasing decisions. Understanding the motivations and behaviors associated with each segment, is critical part to affectively attract the right consumer. (Dias, 2003) These actions and beliefs are often result from major events happening during the generations' developmental stages. The generations that are currently looked at by brands and retailers are Baby Boomers, Generation X, Millennials, and Generation Z. (Table 3: Generations) Millennials are further discussed due to relevance of the research.

Table 3: Generations (Kotler & Armstrong, 2016; Solomon, 2016)

	Dates Born	Current Age	Characteristics
Baby Boomers	1946-1964	56-73 years old	-hitting common retirement age in the US -typically have kids in Millennial generation -shaped by post WWII mentality and strong stable environment
Generation X	1965-1976	44-55 years old	-smaller segment than Baby Boomers -often overlooked by marketers -family oriented -buys quality over quantity -first generation to embrace technology -typically have kids in Generation Z
Millennials	1977-1999	43-21	-witnessed adoption of technology -grew up in high security environments -shaped by aftermath of 9/11 -innovators and early adopters of technology -rising disposable income
Generation Z	2000-present	0-20 years old	-includes teens and tweens -similar behaviors to millennials -has lived in only in a technology-based world -not typically paying for their own items

2.7.1.1 Millennials

The research here focuses specifically on the understanding the habit of millennial consumers. Millennials are defined as being born between 1981-1996, so this generation is currently between the ages of 23-38. (Valaei & Nikhashemi, 2017) However, when segmenting the generations by age there is often much discrepancy. Some claim that millennials are those born between 1986-2002 making that group between 17-33 years old today. (Solomon, 2016, pg. 428) To help understand the ages of millennials, this generational cohort is divided from others by witnessing the adoption of technology mobile devices, remembering 9/11 terrorist attacks and

its aftermath. (Hoffower, 2019) Millennials are considered technology natives as they are often the first to adopt new technology. This generation also grew up in high security environments and a disruptive environment due to the 9/11 attacks. (Shamma, 2011)

For the purpose of this study age gap was expanded to include those born between 1979-1999, changing the age range to be 20-40 when the survey was completed. Historically, Baby Boomers have had the highest disposable income, however, as Baby Boomers are aging out and millennials are entering a new developmental stage, and there has been a switch in purchasing power. (Dias, 2003) Millennials are entering the work force increasing their disposable income and needs. In addition, millennials are starting families and transitioning their needs and wants to accommodate this milestone. With that said, brands and retailers are refocusing their attention to this generation.

2.7.2 Behavioral Habits

As stated before, each generation segment has specific buying patterns that are specific amongst the cohorts. When looking at millennials specifically, the generation as a whole tends to be more sustainably conscious and concerned about the ethical practices associated with the products purchased. (Valaei & Nikhashemi, 2017; thredUP, 2019) In addition, young consumers and the millennial generation are considered to be fashion leaders and innovators. (Morgan & Birtwistle, 2009) From the GlobalData report, 56% of 18-29 years old are looking for new products and offers every time a brand is visited. (thredUP, 2019)

For the purpose of this research, it is important to understand the specific buying and disposal methods that millennials are using. As the fashion leaders of the industry, millennials spend almost 70% of their disposable income on apparel and other fashion items. (Valaei &

Nikhashemi, 2017) With that said they are acknowledging the impact of buying new garments and apparel. In 2019, 29% of consumers 25-37 years old surveyed, bought second-hand apparel and 64% of women at any age bought or are open to buying second-hand clothing in general. (thredUP, 2019) By looking at the impact that the resale market is having on the industry, retailers can take the opportunity to deepen the relationship with customers by developing a donation or second-hand clothing program.

2.7.3 Gender, Education, Life Stages and Sustainable Habits

The millennial generation is one of the most aware and ethically conscious segments in the market. With that said, certain demographic variables have more sustainable habits than others. A major variable that consistently shows a difference in behavior is gender. Research has found that women are typically more sustainably conscious. (OECD.org, 2019) This leads to the conclusion that women participate in more environmentally friendly practices as compared to men.

Education is another demographic variable that significantly influences the behaviors of consumers. Typically, as an individual gains more education, more thought will be put into the consequences of their actions. With that said, research from Park, Choi, and Kim, revealed that those with more education are practice more sustainable behaviors. (2012) Other research divided education levels into low, middle, and high. Those with high education levels identified strongly with convinced sustainers and sustainable wannabes. This proves that as education increases, sustainable practices increase as well. (Haan et. al., 2018)

Millennials are the generation that is currently going through significant life changes. Individuals could be graduating and starting their careers, getting married, buying their first

house, and starting a family. Each of these events shape the individuals buying behavior, and their habits start to shift with age. Ultimately, their habits are constantly changing as new life stages are entered, income increase, and priorities change.

The first life stage of most the millennial generation experience is moving. Typically, they are leaving their parent's home and are gaining independence. This can be through entering the college steppingstone or entering the work force. During this time period, consumers have very little income, if any, to spend on items. With that said, this segment does still have a drive to be sustainably conscious and often do this while saving money. For example, there has been a rise in using reusable items such as water bottles, bags, and as well as an increase in the use of thrifted items. (Ottoman, 2010; Yan, Bae, & Xu, 2015) In terms of secondhand clothing, research found that college students who shopped second hand were more likely to be environmentally conscious. (Yan, Bae, & Xu, 2015)

As some millennials finish their academic journeys, they start to transition into careers and more economically stable lifestyles. For some this begins after primary education (K-12), while others chose secondary education and hit this milestone a few years later. This life stage is when the segment starts earning a disposable income and start purchasing higher priced items. One way millennials are transition their buying habits is by leaning towards sustainable or eco-friendly products. With a buying power of \$200 billion have a more lucrative income allowing millennials to focus on using more sustainable or eco-friendly products as compared to find ways to be sustainable and protective of the environment that are traditionally at a higher price. (Schroeder, 2017; Solomon, 2015)

A major event that changes an individual's life is starting a family. As consumers are starting families, everything about their life shifts, including their shopping habits. For

consumers who have families and are shopping for children, it is found that there is an increase in brand loyalty. (Chahal, 2015) These consumers are looking for products they trust, are healthy for their family, and are of quality. Parents are also seen to be more active in the thrifting and donating process. Many moms prefer shopping for secondhand clothing for their children due to the fact that they grow out of clothing at a rapid rate.

2.8 Consumer Behavior Theories

For the purpose of this research, behavioral theories will be used to support the hypotheses and understand the psychology behind consumers' willingness to participate in take-back programs. The two theories include theory of reasoned action (TRA) and theory of planned behavior (TPB). Both of these schools of thoughts attempt to predict the future behavioral decisions of consumers based on attitude, subjective norms. (Madden, Ellen, & Ajzen, 1992) These models have been widely used in the various industries to understand the motivations behind consumers' behavior and purchase decisions. (Montano & Kasprzyk, 2015)

2.8.1 Theory of Reasoned Action

The theory of reasoned action stems from the Fishbein model to make better predictions of human behavior and intentions. (Solomon, 2015; Madden, Ellen, & Ajzen, 1992) It is based on the idea that humans make systematic decisions to avoid disappointing other and achieve the desired results. (Belleau, Summers, Xu, & Pinel, 2007; Macovei, 2015) A breakthrough in this model was the fact that influence of other people were considered as seen in Figure 6: Theory of Reasoned Action. The model is derived from Fisbein and Ajzen research in adopting the original

Fishbein model. (Fishbein & Ajzen, 1975) The model breaks down the informational inputs humans receive to make

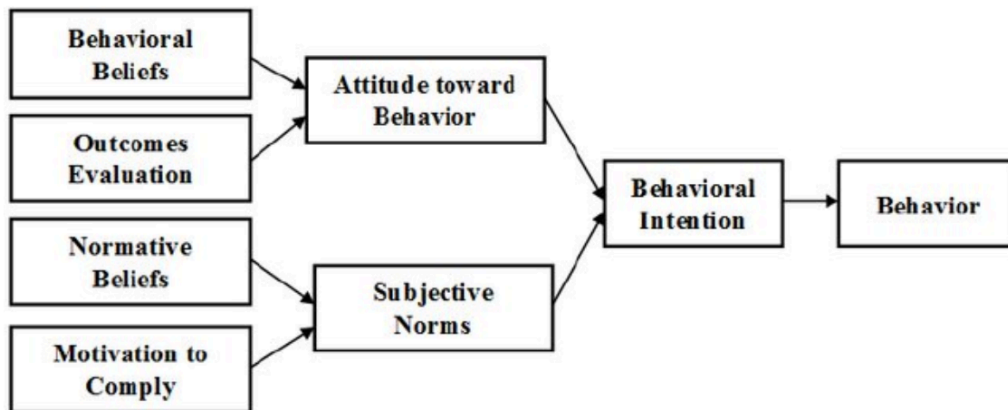


Figure 6: Theory of Reasoned Action Model (TRA) (Fishbein & Ajzen, 1975)

TRA focuses on analyzing the effects attitude toward the behavior and subjective norms have on behavioral decisions of humans. According to Solomon, (2015) the theory evaluates the perceived effects of the behavior from the decision maker. Attitude focuses on the “strengths of beliefs about owning and using the product and evaluations of those beliefs.” (Belleau, Summers, Xu, & Pinel, 2007) With that said, according to Macovei, there are two inputs considered when forming an attitude toward a behavior. These include, behavioral beliefs and outcomes evaluation and can be seen in Figure 6. (Macovei, 2015; Fishbein & Ajzen, 1975) Behavioral beliefs are the attributes or outcomes that an individual can associate with the intended behavior. (Montano & Kasprzk, 2015) Outcome evaluations is simply the weighted value or strength one places on the consequences of a behavior. (Macovei, 2015) In Figure 6, the model depicts these factors and their effects in the TRA school of thought.

The second major factor in the TRA is the effects of subjective norms. This element of the theory accounts for the social pressure an individual perceives of the behavior. (Belleau, Summers, Xu, & Pinel, 2007) This model takes into consideration external factors that an individual may experience. Subjective norms represent the correlation between behavior and a reference group. (Macovei, 2015) With that said there are two factors that are used to measure this element; normative belief and motivation to comply. (Solomon, 2015) Normative belief is the strength that reference groups approve or disapprove the behavior. (Montano & Kasprzk, 2015) Motivation to comply represents the extent one takes others' possible reactions into consideration. (Solomon, 2015)

2.8.2 Theory of Planned Behavior

The theory of planned behavior (TPB) is an extension of TRA developed by Icek Ajzen. (Montano & Kasprzk, 2015) The model incorporates perceived behavioral control as an additional factor in explaining a human's behavior. (Macovei, 2015) Figure 8: Theory of Planned Behavior-TPB was developed by Ajzen to depict the factors that are believed to affect a behavior. (Ajzen, 1991) Here, subjective norm and attitude toward behavior have the same meaning and effect as in TRA. However, perceived behavior control was added to increase the predictive nature of TRA. (Zheng & Chi, 2014)

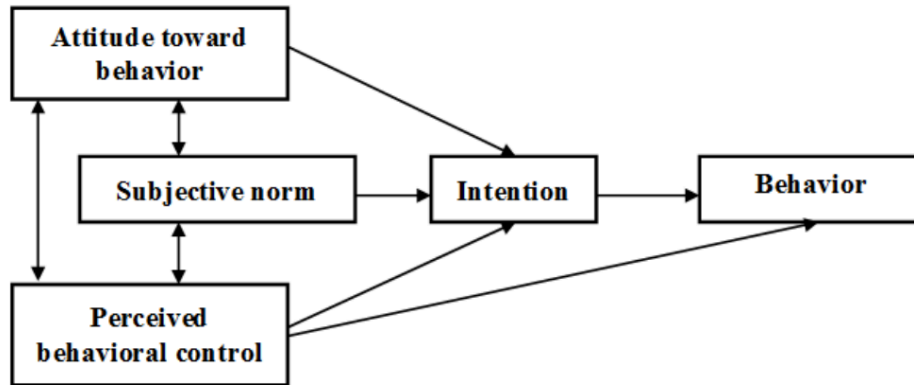


Figure 7: Theory of Planned Behavior (TPB) (Ajzen, 1991)

The factor, perceived behavior control takes into consideration situational elements both external and internal. (Macovei, 2015) External refers to the perceptions of personal outside conditions such as time and money. Internal perceived behavior control is associated with the individual's power over resources such as skill, ability and performance. (Ko & Jin, 2017) With this, perceived behavioral control is predicted to have an effect on both intention and behavior. (Madden, Ellen & Ajzen, 1992) By having this unique feature, researchers are able to better understand the human psychology on intention versus behavior.

3. METHODOLOGY

3.1 Problem Statement

The research primarily focuses on two major problems.

1. The first is to evaluate consumers' habits in the disposal process of clothing.
2. The second is identify consumer motivations in using alternative means of disposal.

3.2 Purpose Statement

The purpose of this study is to learn how life stage and education affect the willingness of millennial consumers in the US to participate in retailers' clothing take-back programs as a way of diverting the disposal of apparel.

3.3 Research Objectives

1. Gain insight on the sustainability practices of the millennial consumer.
2. Learn if millennial consumers would participate in retailers' clothing take-back programs.
3. Evaluate how life-stage or different life milestones affects a millennial consumer's clothing disposal habits
4. Explore how education levels affect a millennial consumer's clothing disposal habits.

3.4 Hypotheses

H1. Brand loyalty increases for individuals who participate in retailer or brand take-back programs

H2. Consumers are more likely to use take-back programs from brands they trust or have strong brand loyalty.

H3. Parental status correlates to awareness of take-back programs.

H4. Mothers are positively correlated to utilizing take-back programs.

H5. Education level impacts clothing disposal habits.

3.5 Setting

For this research, a self-administered survey was distributed via emails from the researcher. The survey was distributed in September and October, 2019. The survey was designed to be completed in 5-10 minutes. To maintain anonymity and security of information, the Qualtrics, survey program was used. A compliance form was imbedded in the survey, and compliance was accepted when respondents click on the link to begin the survey.

3.6 Participants

Participants were gathered through friends and families of the researcher and connections to various groups and organizations, meaning a convenient sample was used. Since the research is focusing exclusively on the Millennial consumer, the operational definition of this generation will be used. Participants are between the ages of 20 and 40 years old, born between 1979-2001. Respondents will also have various backgrounds, education levels, and stages in life. A list of the places from where participants were recruited is in the Appendix A.

3.7 Measurement Instruments

The survey was designed to gain insight regarding the millennial consumer and their thoughts and behaviors toward retailer and brand take-back programs. The questionnaire was developed based on various models from Koch and Domina and adapted to fit the context of the study. The beginning of the survey gained insight on the basic demographic information of the respondent. Below is a list of demographic factors included.

- Age
- Gender
- Ethnicity
- Education
- Employment status
- Marital status
- Income

The second part of the survey was used to measure the sustainable behaviors of participants based on the models developed by Koch and Domina. The models evaluate the general recycling behaviors practiced and the textile disposal behavior. (Koch & Domina, 1997; Koch & Domina, 1999) All of the models have been adjusted to a five-point Likert scale for implication. The end of the survey narrows the focus to specifically look at the behavior of participants towards take-back programs. The full questionnaire is attached in appendix C.

3.8 Data Analysis

The data was collected to identify relationships between consumer demographics and their clothing disposal habits. The results of the survey were evaluated, looking at various

demographic variables compared to the behavior variables collected from the survey results. Basic descriptive statistics such as, standard deviation, frequency, and mean were calculated to identify sample characteristics. In addition, Tukey-Kramer analysis was completed to identify influences that were statistically significant. With this method a backwards approach was utilized where all of the demographic variables were included and one-by-one they were removed to analyze the effects of each combination. SAS software was used to run Tukey-Kramer analysis and data storage. The four research objectives were used to determine which relationships to test. Results are shown using tables and figures.

4. RESULTS

Results from the survey and statistical analysis are presented in this chapter. A total of 487 responses were collected and of these 297 were viable for the research. Responses were eliminated if participant did not meet required age range (20-40) or if the survey was incomplete. Sample characteristics are introduced first to understand the background of the participants. Descriptive statistics are used to present that information for the section. The following sections are the results of the Tukey-Kramer analysis associated with each research objective. The sample characteristics are used to make connections in regard to research objectives. Under each objective, the analysis evaluates the significance of each variable from the sample characteristics to test each hypothesis. The chapter will conclude with a summary of the findings and results.

4.1 Sample Characteristics

Demographic information is present in Figure 8: Sample Demographics and Table 4: Detailed Sample Demographics. Of the 297 respondents, approximately 72 percent were female, and 26 percent were male (Figure 8a: Gender). Approximately 58 percent of respondents had a bachelor's degree, this was the most common highest level of education (Figure 8b: Education Level). Income was another demographic that was analyzed. Income was diverse ranging from below \$20,000 to over \$100,000. (Figure 8c: Household Income) The responses ranged between approximately 11 percent, which was an income of \$81,000 to \$100,000, to over 20 percent, which was an income of over \$100,000.

Information was also collected in regard to participants stage of life. This included information about employment status, marital status, and parental status. Approximately 54 percent of the participants identifying as working full-time, resulting in a majority of the

respondents in this life stage. (Figure 8d: Employment Status) Marital status was another demographic analyzed to see how behavior changed. Almost 60 percent of the participants single and 33 percent were married this helped identify the stage of life of the those in the sample. The other 7% represented those that were in domestic partnerships, divorced, or widowed. (Figure 8e: Marital Status) Finally, parental status was collected to see if behavior changed with the presence of children. Of the sample, over 19 percent of respondents were parents, while just over 80 percent had not yet become parents (Figure 8f: Parental Status) Table 4: Detailed Demographics further depicts the diversity of demographics collected.

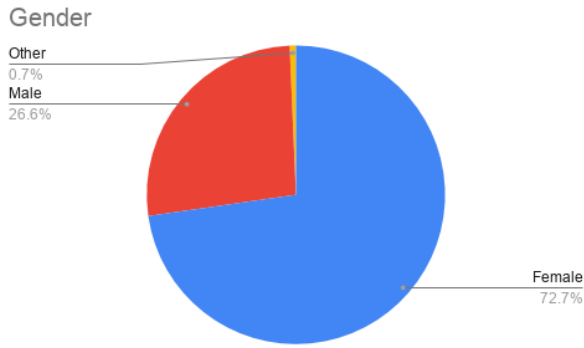


Figure 8a: Gender

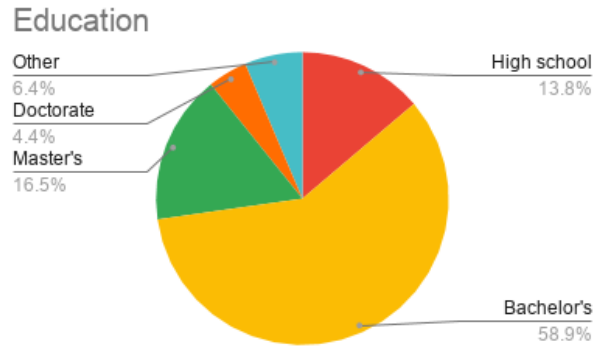


Figure 8b: Education Level

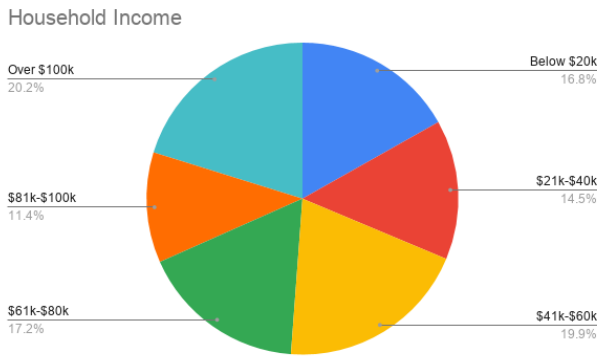


Figure 8c: Household Income

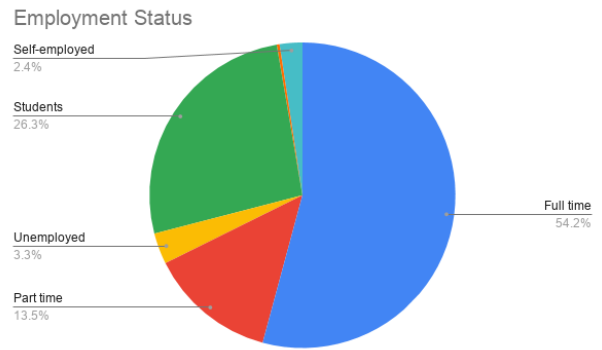


Figure 8d: Employment Status

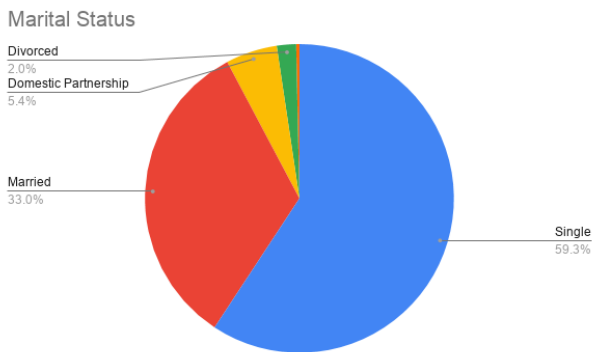


Figure 8e: Marital Status

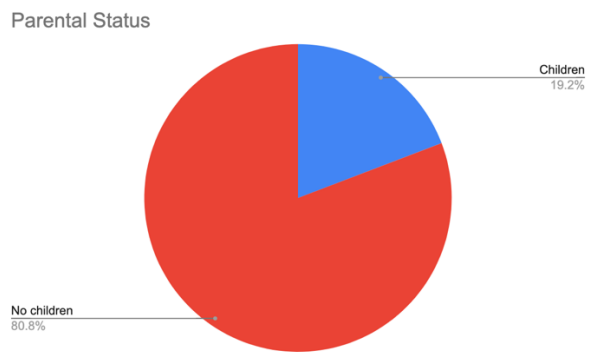


Figure 8f: Parental Status

Figure 8: Sample Demographics

Table 4: Detailed Sample Demographics

Gender	Number of Respondents	Percentage
Female	216	72.73%
Male	79	26.60%
Other	2	0.67%
Total	297	100.00%
Education Level	Number of Respondents	Percentage
Less than high school degree	0	0.00%
High school degree or equivalent	41	13.80%
Bachelor's degree	175	58.92%
Master's degree	49	16.50%
Doctorate degree	13	4.38%
Other (Associates)	19	6.40%
Total	297	100.00%
Household Income	Number of Respondents	Percentage
Below \$20k	50	16.84%
\$21k-\$40k	43	14.48%
\$41k-\$60k	59	19.87%
\$61k-\$80k	51	17.17%
\$81k-\$100k	34	11.45%
Over \$100k	60	20.20%
Total	297	100.00%

Table 4 (continued)

Employment	Number of Respondents	Percentage
Full time	168	56.57%
Full time and student	11	3.70%
Full time and self-employed	2	0.67%
Part time	23	7.74%
Part time and student	21	7.07%
Part time, self-employed and student	1	0.34%
Unemployed but looking	4	1.35%
Unemployed but looking and student	1	0.34%
Unemployed and not looking	6	2.02%
Student	54	18.18%
Retired	1	0.34%
Self-employed	5	1.68%
Total	297	100.00%
Marital Status	Number of Respondents	Percentage
Single	176	59.26%
Married	98	33.00%
Domestic Partnership	16	5.39%
Divorced	6	2.02%
Widowed	1	0.34%
Total	297	100.00%
Parental Status	Number of Respondents	Percentage
Children	57	19.19%
No children	240	80.81%
Total	297	100.00%

4.2 Research Objective One: Apparel Disposal Practices

The first objective of this research was to gain insight on the current apparel disposal practices of the “millennial” consumer. For the purpose of this research millennials are defined by those born between 1979-2001. A Likert scale was used based on models developed by Koch and Domina (Koch & Domina, 1997; Domina & Koch, 1999) that was then converted to a point system with “always” representing five and “never” representing one. Table 5: Clothing Disposal Behavior shows the mean, median and standard deviation of the responses for each behavior. With this data it is concluded that mean number was between 2.06 and 3.95 indicating that on average the participants did not have a strong opinion or behavior towards each clothing disposal method.

Table 5: Clothing Disposal Behavior

Apparel Disposal Behavior	Mean	Median	Std Dev
Recycle	3.46	4.00	1.12
Throw away	2.12	2.00	0.80
Sell	2.17	2.00	1.03
Donate	3.95	4.00	0.81
Give to friends/family	2.68	3.00	0.89
Donate to charity organizations	3.69	4.00	0.95
Donate to for-profit thrift stores	2.06	2.00	1.17

To further analyze the data, a statistical analysis was conducted with the demographic information gathered at the beginning of the survey. Using these variables, gender was significant in nine out of sixteen of the behaviors evaluated, when using a p-value of ≤ 0.05 . (Table 6: Gender and Clothing Disposal Behavior) In terms of clothing disposal methods (questions 9-15), gender was significant in three out of seven of the behaviors. The results indicate that recycling, selling and giving away clothing to friends or family were greatly

influenced by gender. The results indicated that females are more likely to participate in alternative clothing disposal methods. This aligns with the research conducted by OECD. In terms of feelings towards take-back programs (questions 18-23, 27), gender was significant in three out of six of the feelings evaluated. Gender was found to influence feelings towards incentives to participate in take-back programs, believing that brands and retailers are making more of an effort in sustainability claims and using take-back programs can increase personal brand loyalty. The data found that women more open minded in regard to take-back programs. Finally, gender influenced trust in sustainability claims (question 24 and 26). The results indicated that females are very skeptical of the sustainability efforts brands and retailers are implementing. This aligns with TRA. Since many consumers are weary of the outcome, there is a lack of trust in participating in these sustainability programs.

Table 6: Gender and Clothing Disposal Behavior and Beliefs

Question	F-statistic	P-value
Recycles clothes	4.17	0.0163
Throw away clothes in trash	2.41	0.0912
Sells old clothes	12.15	<0.001
Donates/gives away old clothes	1.22	0.2962
Gives old clothing to friends/family	3.36	0.0360
Donates old clothing to charity	2.76	0.0651
Donates old clothing to for profit thrift stores	1.77	0.1730
Willing to donate to a take-back program	1.67	0.1908
Incentives would increase willingness to use take-back programs	4.66	0.0102
Believe take-back programs shows brands/retailers are making more sustainable efforts	3.25	0.0400
Take-back programs improves brand image	1.56	0.2114
Take-back program would increase personal brand loyalty	5.23	0.0059
Personal brand loyalty influence on participation	2.33	0.0991
Trust in brand/retailer sustainability claims	3.13	0.0452
Truthfulness in claims of recycling/donating collected garments	4.20	0.0159
Take-back programs increase likeliness to shop with brand/retailer	6.53	0.0017

4.3 Research Objective Two: Take-back Program Awareness and Influences

The second research objective for this study is to identify the awareness and influences for millennial consumers to participate in retailers clothing take-back programs. It was concluded that awareness was relatively low with only 31.65 percent of respondents being familiar with take-back programs. To further investigate awareness, participants were asked to list three brands or retailers that currently offer these programs and cloud visualization was used to depict the results. (Figure 9: Consumer Brand/Retailer Awareness) The larger the name, the more frequent the brand or retailer was mentioned. From the data collected, participants were able to identify

42 different companies that reportedly had take-back programs. Of the top 10 brands and retailers respondents most frequently listed, two were not brand or retailer take-back programs. Based on the data collected H&M was the retailer respondents were most aware of for their take-back program, followed by Patagonia, Madewell, North Face and N/A (or unable to identify). (Table 7: Top 10 Brand/Retailer Take-Back Programs) For the purpose of this study, the researcher is interpreting N/A as unaware of brands and retailers currently using take-back programs. A significant discovery through this question was the lack of understanding or identification of take-back programs by the respondents. After a description was given, many respondents still thought of consignments stores and thrift stores such as Plato's Closet and Goodwill as take-back programs. With these results, it indicates there is a strong misunderstanding of the take-back programs and the distinction between different alternative clothing disposal methods.



Figure 9: Consumer Brand/Retailer Awareness

Table 7: Top 10 Brand/Retailer Take-Back Programs)

	Brand/Retailer	Frequency
1	H&M	43
2	Patagonia	21
3	Madewell	20
4	North Face	11
5	N/A	11
6	Levi Strauss	7
7	American Eagle	6
8	Nike	5
9	Eileen Fischer	4
10	Plato's Closet	4

After take-back programs were explained to respondents, data was then collected to analyze if they would be willing to participate in these programs instead of using other disposable methods. The results from the survey revealed that 64.45 percent responded they strongly agree or somewhat agree. (Table 8: Consumer Willingness to Use Take-Back Programs)

With over half of the participants responding within the top-two box, there is a significant opportunity for brands and retailers to incorporate take-back programs in current business models.

Table 8: Consumer Willingness to Use Take-Back Programs

Are you willing to donate to a take-back program rather than using alternative means of disposal?		
	Frequency	Percentage
Strongly Agree	47	15.82%
Somewhat Agree	145	48.82%
Neither Agree nor Disagree	84	28.28%
Somewhat Disagree	15	5.05%
Strongly Disagree	6	2.02%
Total	297	100.00%

The respondents were also asked if an incentive, such as a coupon or discount, would increase their likelihood of utilizing a take-back program from a brand or retailer. The data indicated that 86.53 percent of respondents strongly agreed or somewhat agreed that an incentive would influence likelihood to use take-back programs. (Table 9: Influence of Incentives on Participation) This is a significant opportunity for brands and retailers to encourage more consumers to utilize take-back programs. A top-two survey analysis was used to summarize the positive responses of the questionnaire. For this research “strongly agree” and “somewhat agree” were used as the restraints the top-two box. With over 80 percent of the respondents in the top-two box, this could be a promotion that brands and retailers can consider.

Table 9: Influence of Incentives on Participation

Would an incentive (i.e. a coupon or discount) increase your willingness to use a take-back programs rather than other means of disposal?		
	Frequency	Percentage
Strongly Agree	128	43.10%
Somewhat Agree	129	43.43%
Neither Agree nor Disagree	25	8.42%
Somewhat Disagree	13	4.38%
Strongly Disagree	3	1.01%
Total	297	100.00%

Under the second research objective, the first two hypotheses of the study were analyzed. The first hypothesis was there is a correlation between brand loyalty and participation in take-back programs. The top-two box was used again to summarize the data, using “strongly agree” and “somewhat agree” as the restraints. The responses indicate 58.59 percent of respondents would see an increase in loyalty by marking within the top- two box. Results showed that 56.90 percent of respondents did feel personal brand loyalty influenced participation in the brand’s programs. (Table 10: Influence of Brand Loyalty)

Table 10: Influence of Brand Loyalty

	Would a take-back program increase your brand loyalty for the brands or retailers?		Does your personal brand loyalty make you more likely to participate in brand or retailer take-back programs?	
	Frequency	Percentage	Frequency	Percentage
Strongly Agree	58	19.53%	45	15.15%
Somewhat Agree	116	39.06%	124	41.75%
Neither Agree nor Disagree	84	28.28%	79	26.60%
Somewhat Disagree	21	7.07%	30	10.10%
Strongly Disagree	18	6.06%	19	6.40%
Total	297	100.00%	297	100.00%

The second hypothesis claims that consumers are more likely to use take-back programs from brands they trust or have strong brand loyalty. From the data collected, there is a lack of trust in the claims of sustainability with only 35.02 percent of the responses being in the top-two box. (Table 11: Consumer Trust in Brands and Retailers) With having almost 65 percent being skeptical of sustainability claims, brands and retailers have an opportunity to grow.

Table 11: Consumer Trust in Brands and Retailers

Do you trust the sustainability claims of brands or retailers make about their products in general?		
	Frequency	Percentage
Always	6	2.02%
Mostly	98	33.00%
Sometimes	133	44.78%
Seldom	48	16.16%
Never	12	4.04%
Total	297	100.00%

Participants were then asked if they believed that the items returned in the take-back programs were being recycled or donated. Based on the information collected, only 35.35% of the respondents marking in the top-two box. (Table 12: Trust in Take-Back Programs) To help secure the success of take-back programs, brands and retailers have to work to build trust from consumers with where or how the donated item are being used.

Table 12: Trust in Take-Back Programs

In general, do you believe brands or retailers are truthful in the claims that they are recycling or donating the products collected in take-back programs?		
	Frequency	Percentage
Always	8	2.69%
Mostly	97	32.66%
Sometimes	159	53.54%
Seldom	26	8.75%
Never	7	2.36%
Total	297	100.00%

To further investigate why respondents did not trust the sustainability claims that brands and retailers were making, participants were asked to briefly describe their beliefs. Of the 297 responses, 237 were N/A or left blank. For the purpose of this research, N/A is interpreted as unable to identify why they do not trust in the sustainability claims of brands and retailers. With the 60 remaining responses key words and phrases were used to evaluated trends in responses. Appendix D lists the method used. As seen in Figure 10, six categories were developed; profit, marketing, greenwashing, image, lack of transparency and research, other. The main reason participants were wary of the claims from brands and retailers was profit. Many respondents felt that the sustainability efforts were driven by the need to increase profit as compared to sincerity.

When companies are incorporating sustainability initiatives throughout, it is important to ensure have clear communication of the motivations behind decisions.

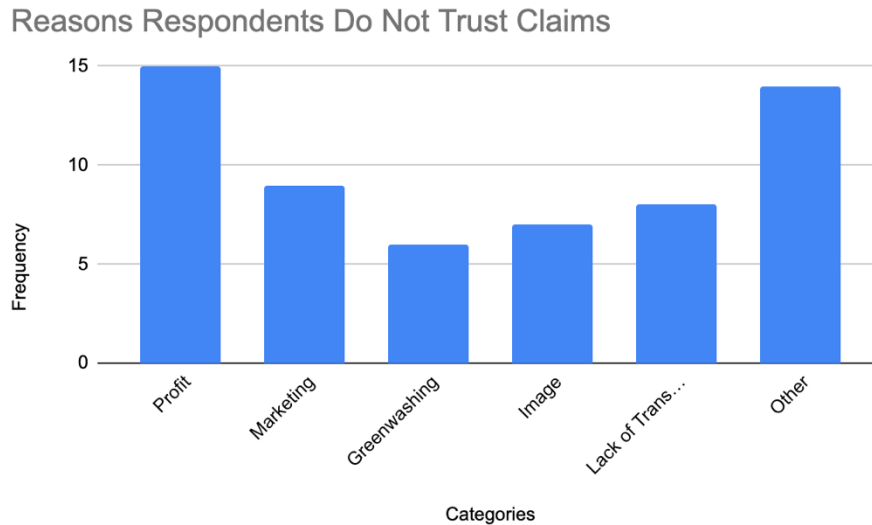


Figure 10: Reasons Respondents Do Not Trust Sustainability Claims

4.4 Research Objective Three: Life Stage

The third research objective is to understand if life-stage or different life milestones affect millennial consumers clothing disposal habits. With this goal, hypotheses three and four were developed. The third hypothesis proposed that students were more aware of take-back programs. The fourth hypothesis suggested that there was a correlation between parental status and take-back program awareness. Using a p-value of ≤ 0.05 the results indicate that marital status, parental status and employment status were not a significant influence on behavior. (Table 13: Employment Status, Marital Status, Parental Status and Clothing Disposal Behavior)

Employment status influenced two of the sixteen the behaviors analyzed. This does not align with the research by Kotler and Armstrong. (2016) The belief that take-back programs

improves the brand image and the trust the claims of sustainability efforts made by brands and retailers were the only two categories affected by employment status. Marital status had significant influence in two out of the sixteen actions evaluated. Similar to employment status, marital status influenced belief in that take-back programs improves the brand image. Marital status also impacted the confidence that brand or retailer take-back programs would increase likelihood to shop with brands or retailers. Finally, parental status was proven to significant influence on one out of the sixteen clothing disposal behavior and beliefs investigated. Parental status only influenced consumers trust in the claims of sustainability efforts made by brands or retailers. This was similar to employment status. The results of marital and parental status do not align with the research from Chahal. (2015)

Table 13: Employment Status, Marital Status, Parental Status and Clothing Disposal

Question	Employment Status		Marital Status		Parental Status	
	F-statistic	P-value	F-statistic	P-value	F-statistic	P-value
Recycles clothes	0.66	0.7793	0.49	0.7399	0.93	0.3369
Throw away clothes in trash	1.13	0.3348	1.38	0.2400	0.06	0.8067
Sells old clothes	0.78	0.6631	1.09	0.3620	1.11	0.2920
Donates/gives away old clothes	1.09	0.3727	2.01	0.0935	1.02	0.3122
Gives old clothing to friends/family	1.54	0.1164	0.66	0.6234	3.39	0.0668
Donates old clothing to charity	0.93	0.5138	0.66	0.6208	0.00	0.9759
Donates old clothing to for profit thrift stores	6.70	0.7421	1.17	0.3259	0.00	0.9870
Willing to donate to a take-back program	0.73	0.7077	1.65	0.1630	0.14	0.7106
Incentives would increase willingness to use take-back programs	0.82	0.6240	2.26	0.0626	0.05	0.8255
Believe take-back programs shows brands/retailers are making more sustainable efforts	0.78	0.6572	0.99	0.4120	0.37	0.5444
Take-back programs improves brand image	2.83	0.0016	3.11	0.0158	0.25	0.6167
Take-back program would increase personal brand loyalty	1.77	0.0591	1.67	0.1573	0.35	0.5527
Personal brand loyalty influence on participation	0.82	0.6151	1.57	0.1814	2.23	0.1361
Trust in brand/retailer sustainability claims	2.08	0.0221	2.47	0.8447	4.17	0.0421
Truthfulness in claims of recycling/donating collected garments	0.81	0.6303	1.09	0.3598	0.70	0.4045
Take-back programs increase likeliness to shop with brand/retailer	0.72	0.7162	3.18	0.0140	0.06	0.8028

4.5 Research Objective Four: Education

The final research objective was to explore how education levels affect a millennial consumer's clothing disposal habits. With this mission, the fifth hypothesis was developed; education level impacts clothing disposal habits. The results determined that there was significance in two out of the sixteen questioned analyzed when using a p-value of ≤ 0.05 . (Table 14: Education Level and Clothing Disposal Habits) Education proved to influence that consumers would sell their own clothing, and willingness to donate to take back programs as compared to other means of clothing disposal methods. The results from this section do not align with the research from Haan et. al. and Park et. al. (2018; 2011)

Table 14: Education Level and Clothing Disposal

Question	F-statistic	P-value
Recycles clothes	2.57	0.0382
Throw away clothes in trash	1.34	0.2566
Sells old clothes	1.13	0.3404
Donates/gives away old clothes	0.63	0.6443
Gives old clothing to friends/family	0.63	0.6391
Donates old clothing to charity	1.00	0.4075
Donates old clothing to for profit thrift stores	1.62	0.1699
Willing to donate to a take-back program	2.79	0.0265
Incentives would increase willingness to use take-back programs	1.04	0.3882
Believe take-back programs shows brands/retailers are making more sustainable efforts	1.77	0.1353
Take-back programs improves brand image	1.17	0.3252
Take-back program would increase personal brand loyalty	0.22	0.9269
Personal brand loyalty influence on participation	0.88	0.4769
Trust in brand/retailer sustainability claims	0.60	0.6616
Truthfulness in claims of recycling/donating collected garments	1.10	0.3572
Take-back programs increase likeliness to shop with brand/retailer	0.06	0.8028

5. CONCLUSION

5.1 Discussion

Take-back programs are a unique way for brands and retailers to connect with consumers. These initiatives not only expand sustainability efforts and can improve corporate image, but also can bring shoppers back into the store and build the customer/brand relationship. Take-back programs are a fairly new business model that an increasing number of brands and retailers are integrating into their business models. The purpose of this research is to provide insight on consumer behavior surrounding alternative clothing disposal methods. As more sustainable models such as circular economies are becoming prevalent in the industry, it is important that brands and retailers' efforts are effective and useful. This research focuses on take-back programs specifically and addresses the question of will consumer participate in these initiatives.

From the first, third and fourth research objectives, it was concluded that many types of consumers use multiple methods to dispose of apparel. While consumers were donating and/or giving away clothing, they were also recycling their discarded items. The results indicated that marital status, education level, employment status, and parental status no significant difference in clothing disposal methods. The data proved that gender made significant difference for this particular behavior. Brands and retailers can use this information to better target potential shoppers. Gender was a significant influencer; therefore, marketers can develop campaigns to better attract a specific gender.

Take-back programs are less common in the traditional retail landscape, and results of this study showed consumer awareness was low. This research found that almost 70 percent of the sample were unaware of take-back programs in general. In addition, when the respondents who were familiar with take back programs, but when asked to list brands and retailers that had

their own initiatives, thrift stores, resale sites or n/a was often listed. However, when the respondents were asked if they would be willing to participate in a take-back program over 60 percent of the sample responded positively. This is an opportunity for brands and retailers to improve. By increasing awareness brands and retailers can increase consumer participation.

Finally, personal brand loyalty and trust were investigated as these are both influential elements in a traditional shopping atmosphere. The results indicated that loyalty, although not significant, did play some influence on willingness to participate in take-back programs. However, brands and retailers can use these initiatives as an opportunity to build that customer loyalty. In addition, it was discovered that customer trust was rather low. Respondents had little confidence in the sustainability claims that brands and retailers make as well as if the clothing brought in through take-back programs were actually being recycled or donated. Many explained that they felt companies were only being “sustainable” to gain more profit. Some comments include “they work for profit”, “they care more about image and profit than sustainability”, and “retailers do whatever they can to turn a profit.” The rest of the comments are listed in the Appendix D. This highlights one of the biggest challenges that many brands and retailers face when integrating more sustainable practices in their business models. As more companies are developing take-back programs, marketers have to create a way to change that concept in the consumer’s mind.

5.2 Limitations and Future Research

This research provides key insights to the relationship between millennial consumer behavior and take-back programs. However, with any study there are some limitations. The first limitation is the sample size and representation. The sample size was limited both in number of

respondents and effective representation of the target population. The majority of the respondents were female, resulting in a lack of representation from the males. In addition, there was a lack of diversity amongst the life stage of the respondents. Only about 19 percent of the sample were parents which was low in terms of other demographic variables included. This could be an opportunity to gain more insight on a specific target market. To improve the research, a survey company could have been used to collect more diverse responses. Using an external source gathering participation could have resulted in a more accurate representation of the population as a whole.

Another limitation of the study is the geographical location of the respondents. A majority of the respondents were located in the southeastern area of the United States due to convenience. Although there were a few outliers, the research used a convenience sample and social media to gain respondents. As behavior changes depending on the environment, expanding the geographical location of the study would add credibility to research. For example, having more responses from larger cities such as Chicago and New York could change some of the results found. In these areas, there could be more opportunities and awareness for sustainability initiatives offered by brands and retailers as compared to more rural locations. A better understanding of overall consumer behavior would have been gained if respondents were from more diverse geographical locations.

Finally, the last limitation of the research is self-reporting bias. Due to the nature of the study, respondents are answering questions without the presence of a researcher. This means that participants could not have clarification if any confusion occurred with the questionnaire. In addition, when answering a self-administered survey, respondents may not accurately represent their actual behaviors. Often times, a respondent may say they behave a certain way, when

reality that is not the case. Participants may also say they are willing to participate in an activity, but when the scenario arises in real life, the respondent may not. This is a limitation that does need to be taken into account when reviewing the data.

There are many opportunities for future research related to the results of this study. First, a focus group of individuals with different backgrounds could be an opportunity to better understand the beliefs and values behind these behaviors. An exploratory study would help the research dissect the motivations behind certain behaviors and make better connections with certain demographics and their actions. In addition, this would eliminate self-reporting bias that occurs with self-reporting data. By analyzing this, the data could be used by industry to better target and connect with the consumers willing to participate in take-back programs.

Another opportunity for future research, would be an observational study. Researchers could watch to see how many and what type of consumers are actually utilizing the take-back programs currently offered by retailers. This would be unique way to evaluate the consumers who are directly in touch with topic of this study. Additional interviews could be conducted with the individuals to collect data on the motivations behind the sustainable behavior. Information about how they were aware of these programs and why certain brands and retailers were chosen over others. This analysis would be helpful for brands and retailers to see where they are successful and where there needs to be growth.

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APPENDICES

APPENDIX A

For data collection respondents were recruited through the friends and family of the primary research as well as various organizations. These groups were reached by the researcher through email or social media. The list below has the organizations that contacted during this process.

- New Bern young adult group at Temple Church
- Bloggers endorsing the survey
- Mommy and me groups
- Young professionals from the American Marketing Association at NC State
- Panhellenic Greek life organizations
- Phi Psi Professional Textile Fraternity Eta Chapter
- Students from NC State University
- Students from NC State Veterinary Medicine School
- APO North Carolina State University Chapter
- Hope Community Church Cary
- Textile Association of Graduate Students (TAGS) at NC State University

APPENDIX B

I need to add in a long chart from the global fashion agenda report, but I do not know how to copy the information over without messing up the chart.

APPENDIX C

Below the questionnaire that was used to conduct this research is listed.

1. What is your age range?
 - a. Under 20 years old
 - b. 20-40years old
 - c. 41-60 years old
 - d. 61-80 years old
 - e. Over 80 years old
2. What is your gender?
 - a. Female
 - b. Male
 - c. Other (please specify)
 - d. Prefer not to say
3. What is the highest degree or level of school you have completed?
 - a. Less than a high school diploma
 - b. High school degree or equivalent
 - c. Bachelor's degree (e.g. BA, BS)
 - d. Master's degree (e.g. MA, MS, MEd, MFA)
 - e. Doctorate (e.g. PhD, EdD, MD)
 - f. Other (please specify)
4. What is your current employment or career status? (Mark all that apply)
 - a. Employed full-time working 40 or more hours a week
 - b. Employed part-time working 1-39 hours per week
 - c. Unemployed, currently looking for work
 - d. Unemployed, not currently looking for work
 - e. Student
 - f. Retired
 - g. Self-employed
5. What is your marital status?
 - a. Single
 - b. Married
 - c. In a domestic partnership
 - d. Divorced
 - e. Widowed
6. Do you have children?
 - a. Yes
 - b. No
7. If you answered yes to question 6, are you a stay at home parent?
 - a. Yes
 - b. No
8. What is your household income?
 - a. Below \$20k
 - b. \$21k-\$40k
 - c. \$41k-\$60k

- d. \$61k-\$80k
 - e. \$81k-\$100k
 - f. Over \$100k
9. Do you recycle?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
10. Do you throw your old clothing in the trash?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
11. Do you sell your old clothing?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
12. Do you donate or give away your old clothing?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
13. If or when you give away your old clothing do you give to your friends or family?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
14. If or when you give away your old clothing do you donate to charity organizations?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
15. If or when you give away your old clothing do you donate to for profit thrift stores?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never

16. Take-back programs are a type of donation program, where consumers take clothing to brand or retailers rather than other disposal means. Are you familiar with these programs?
 - a. Yes
 - b. No
17. If you are familiar with take-back programs, name three brands or retailers that you are aware that have take-back programs?
 - a. D
 - b. D
 - c. D
18. Are you willing to donate to a take-back program rather than using alternative means of disposal?
 - a. Strongly disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly agree
19. Would an incentive (i.e. a coupon or discount) increase your willingness to use a take-back programs rather than other means of disposal?
 - a. Strongly disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly agree
20. Do you believe take-back programs show that brands and retailers that participating brands and retailers are making more efforts to be sustainable?
 - a. Strongly disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly agree
21. If a brand or retailer has a take-back program, do you think it improves the brand image?
 - a. Strongly disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly agree
22. Would a take-back program increase your brand loyalty for the brands or retailers?
 - a. Strongly disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly agree
23. Does your personal brand loyalty make you more likely to participate in brand or retailer take-back programs?
 - a. Strongly disagree
 - b. Disagree

- c. Neutral
 - d. Agree
 - e. Strongly agree
24. Do you trust the sustainability claims of brands or retailers make about their products in general?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
25. If you do not trust the claims of sustainability efforts made by brands or retailers, why?
- a. Fill in the blank
26. In general, do you believe brands or retailers are truthful in the claims that they are recycling or donating the products collected in take-back programs?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never
27. If you use brand or retailer take-back programs, would it increase your likelihood to shop with brand or retailer?
- a. Always
 - b. Mostly
 - c. Sometimes
 - d. Seldom
 - e. Never

APPENDIX D

For question 25, " If you do not trust the claims of sustainability efforts made by brands or retailers, why?" keywords and phrases were used to identify trends in the responses. Below are the terms used to categorize the results.

- Profit: make money, profit, capitalism,
- Marketing: buzzwords, marketing, advertising
- Greenwashing: greenwashing,
- Image: make brand look better, image
- Lack of Transparency/Research: transparency, own research, empty claims
- Other: property theft, never know, never be sustainable, exaggerated claims, they are trying, fast fashion