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Fast Fashion Circularity: Understanding Swedish Consumers' Clothing Recycling Behavior in Brand-Led Take-Back Initiatives

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Abstract

As the fast fashion industry faces a lot of pressure to become more sustainable, clothing take-back programs has been implemented as a way to increase circularity. Urged by policies on textile waste and stronger corporate promises, fast fashion brands are offering recycling options to consumers. But even with these efforts, participation in these programs remains low. This raises questions about what hinders individuals from engaging in circular behaviors such as clothing take back programs and what motivates them. Understanding these barriers and motivations is essential if firms' circular initiatives are to succeed. This thesis explores clothing recycling from the consumer's point of view, focusing on fast fashion in the Swedish context. It seeks to answer two main questions: What factors influence consumer participation in clothing take-back programs? And how can participation in these initiatives be effectively increased? Led by the Theory of Planned Behavior (TPB), the study examines the influence of behavioral attitudes, subjective norms, and perceived behavioral control. Where variables such as environmental knowledge, convenience, peer influence, perceptions of greenwashing, and perceived incentives (both economic and environmental) are assessed in relation to actual participation in take-back programs. To answer the research questions, a mixed-methods approach was used, combining data from 138 survey responses and qualitative insights from a case study. While many respondents expressed positive attitudes towards clothing recycling, the findings showed a gap between attitude and actual behavior. Participation is often blocked by factors such as limited awareness of the programs, unclear environmental benefits, logistical inconveniences, and skepticism about how the collected clothes is actually recycled. Notably, only two TPB-based hypotheses were significant, peer influence and perceived incentives. The other four TPB-based hypotheses, environmental knowledge, convenience, greenwashing and inconsistent sustainability messaging were not supported. Suggesting that the standard model of behavior may fall short in explaining the complexities of consumer decision-making in these areas. To complement this finding, survey responses which captured a qualitative insight was used to provide understandings of individuals' personal experiences, such as perceived barriers, motivations, and suggestions for improving participation in clothing take-back programs. The case study data was used to compare consumers experience and suggestions for improvement with current firms' initiatives, this to provide practical solutions on how to attract and increase participation. This study contributes to ongoing conversations about sustainability and circularity by highlighting the gap between what people say and what they do. It also offers practical guidance for fashion brands, stressing the importance of clear communication, easier access, and building consumer trust. The findings reveal that when developing circular initiatives which are dependent on consumers participation, it is important that firms collaborate and involve the consumer in the process. That, creating true circular systems means understanding and addressing the human side of recycling behavior.

Keywords: Circular economy, consumer recycling behavior, fast fashion, clothing take-back initiatives

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1. Introduction

This section introduces the general view and foundation of the study. It highlights key challenges within circular economy in the fast fashion industry from multiple perspectives, including policymakers (regulatory landscape in Sweden and the European Union), consumers (attitudes and behavior), and practitioners (environmental impact and implementing circularity).

1.2 Background

In recent years, sustainability has gained significant traction as worries over climate change, pollution, and waste management have become more pressing (European Environment Agency, 2022). The importance of these issues was underscored during COP28, the Climate Change Conference held in Dubai in 2023. Where world leaders assessed the slow progress in climate action across key areas, including greenhouse gas emissions reduction and climate resilience. Recognizing the need for accelerated efforts, countries committed there and then to increase climate initiatives by 2030 (United Nations Climate Change, 2023). This commitment has led to stricter governmental regulations with countries like Sweden leading sustainability efforts by setting legally binding net-zero targets for 2045 (World Economic Forum, 2022). While stricter sustainability efforts are in place, government initiatives alone are insufficient. Effective sustainability efforts require collaboration between policymakers and industry practitioners. Without this collective approach, progress will remain fragmented (World Economic Forum, 2023).

The textile industry plays a central role in many national economies, supporting a wide range of operations from small-scale enterprises to large-scale manufacturers worldwide. In terms of production output and employment, it is one of the largest industries globally (Karthik & Gopalakrishnan, 2014). Given that the fast fashion industry is marked as one of the largest contributors to environmental ruin, its impact must be a central consideration in sustainability discussions (Centobelli, et al., 2022). Characterized by rapidly changing trends and the mass production of inexpensive clothing, fast fashion has led to excessive textile waste and overconsumption of raw materials, water, and energy (Papamichael, et al., 2023). The business model prioritizes speed and affordability, resulting in planned obsolescence and premature clothing disposal. Due to the scale of textile production, fast fashion brands rank among the highest global polluters, significantly contributing to water and air pollution (Centobelli, et al., 2022).

To mitigate these challenges, policymakers and businesses are progressively adopting circular economy principles to reduce waste and promote sustainable resource use (Palm, et al., 2021). Europe was the first region to take legislative action against fast fashion's waste crisis (Olivar, et al., 2024). With the EU strategy compelling companies to take responsibility and operate to reduce their carbon and environmental footprints (European Commission, 2022). From a business perspective, sustainability has become critical for competitiveness, much like digital transformation. Achieving sustainability requires

companies to integrate sustainable practices across all business divisions (World Economic Forum, 2022).

Fast fashion firms in Sweden and other EU countries are progressively incorporating circular economy principles into their operations (Brydges, 2021). These principles emphasize resource preservation and extending product life cycles. The core strategy is about circulating products and materials at their max value for as long as possible to minimize waste and resource usage (Ellen Macarthur Foundation, 2021). Even with ongoing efforts, the fast fashion industry continues to face significant challenges in reducing its environmental impact. Largely due to the complexity of its globalized and fragmented supply chain which complicates transparency and waste management (Dissanayake & Weerasinghe, 2022). In Europe, it is said that only 30% to 35% of textile waste is collected, with the majority either discarded or exported (McKinsey, 2022). This underscores the need for more efficient waste management systems, industry-wide innovations to enable circularity at a larger scale, and stronger regulatory frameworks to address these challenges (Sánchez-García, et al., 2024).

The European Union has introduced stricter regulations, such as the EU Strategy for sustainable and circular textiles. Which aims to ensure that by 2030, all textile products sold in the EU stay long-lasting, recyclable, and safe from harmful chemicals. The strategy seeks to reduce textile waste, increase product life cycles, and promote textile recycling (European Commission, 2022). The European Union's sustainable and circular textile strategy also introduces extended producer responsibility (EPR) and digital product passports (DPP) to enhance traceability and hold brands accountable for post-consumer waste (Hvass & Pedersen, 2019). Sweden has notably taken proactive steps to address textile waste through regulatory measures. Implementing a new rule effective January 1, 2025, saying that textiles will no longer be permitted in general household waste. Instead, they must be sorted and collected separately, in compliance with the EU’s waste framework directive. Where municipalities will be responsible for managing textile waste disposal and launching awareness initiatives to help households and businesses adapt to the new requirements (European Environment Agency, 2022).

While these regulations promote sustainability, their success heavily depends on society's awareness and participation. Studies indicate that countries like Sweden, while exhibiting high levels of concern and awareness about sustainability (Andersson, 2016), still consume high quantities of textiles and show low textile recycling behavior (Mariani, 2016; Naturvårdsverket, 2024). Overall, the global apparel consumption is projected to increase by 63% by 2030 (McKinsey, 2025). The State of Fashion 2025 report by McKinsey (2025) highlights a critical gap between consumer intention and action.
For a shift toward circularity to be effective, consumers must adopt circular practices, adjust their purchasing habits and actively participate in textile recycling (Musova, et al., 2021). Addressing circularity challenges in the fashion industry requires a collective effort. While businesses play a crucial role in reducing environmental impact, their efforts alone are insufficient (World Economic Forum, 2023). Effective change requires

alignment between policymakers, businesses, and consumers (Hvass & Pedersen, 2019). Regulatory frameworks must support corporate sustainability initiatives, while consumers must shift toward responsible purchasing and recycling habits (Palm, et al., 2021). Only through coordinated action can the fashion industry transition toward a truly sustainable and circular economy (Centobelli, et al., 2022).

1.3 Problem

As previously mentioned, the transition to a circular economy system in the fashion industry is marked by several complexities, as it involves multiple factors to consider in the textile value chain (Dissanayake & Weerasinghe, 2022). One key research area which has been extensively looked at is the effort to close the loop in supply chain management and to minimize textile waste. Here sustainable design, innovation & sustainability and a lot more have been researched (Holtström, et al., 2019). Studies have also investigated the environmental impact of chemicals and breaking down materials such as polyester and cotton, emphasizing waste management and sustainable fabric production (Kahoush & Kadi, 2022). Furthermore, research into consumer behavior and attitudes toward circularity has provided early insights into their willingness to adopt sustainable practices (Ekström, et al., 2012). The complexities span both upstream in the textile value chain (e.g., waste reduction with for ex production and manufacturing) and downstream (e.g., consumer awareness, attitudes, and behavior) (Karthik & Gopalakrishnan, 2014).
For decades, the industry has primarily concentrated on enhancing upstream supply chain practices. Addressing social and environmental challenges related to production, such as human rights, waste management, non-toxic production processes, and sustainable materials. In contrast, downstream supply chain concerns, such as product use, reuse, and end-of-life management, have only recently started to receive greater attention (Hvass, 2014). In the downstream activities we have come to understand that, despite growing awareness of environmental concerns (Centobelli, et al., 2022), fast fashion continues to generate substantial textile waste (European Commission, 2022). In of all the textile waste, a surprisingly 82% comes from consumers and the rest is waste from manufacturing or textiles that were never sold (European Environment Agency, 2024). In Sweden, each person consumes an average of 13–14 kilograms of newly produced clothing and home textiles annually. Approximately 7–9 kilograms of textile waste per person per year are discarded as residual waste or taken to recycling centres, where they are ultimately incinerated (Naturvårdsverket, 2024).

Sweden is a country where sustainability is a primary concern and awareness is high (Andersson, 2016), but we still see low engagement from the population with sorting and recycling textile (Naturvårdsverket, 2024). A Swedish study by Mariani (2016) indicate that even with strong environmental consciousness, consumer behavior in the context of textile recycling remains inconsistent. Demonstrating the challenge of aligning awareness with active engagement. This highlights the gap between awareness and actionable practices and a pressing need for new sustainable solutions (White, et al., 2019).
Before 2025 Sweden did not have a national collection system for textile waste that separated it from other waste streams. Which meant that many used textiles were not

managed according to the waste hierarchy. This also meant that most of the textile waste from both households and businesses ended up in residual waste and were directly incinerated for energy recovery. Which although is a better alternative than sending it to landfills or burning, it is not optimal, textile should instead be reused or recycled (Naturvårdsverket, 2024). The scarcity of accessible recycling facilities and the complexity of sorting varied textile waste, hinder effective waste management (Ronda, 2024; Palm, et al., 2015).

One significant initiative addressing this challenge is the take-back programs implemented by many fast fashion brands. Which aims to close the loop downstream in supply chains by encouraging consumers to return used garments for recycling, resale, or repurposing (Brydges, 2021). These initiatives also support closed-loop manufacturing systems, where returned garments are reprocessed into new products, reducing environmental impact (Arrigo & Flavio, 2024). Some fast fashion firms have been working with take-back programs for several years (Sweden, 2024). Yet despite corporate efforts to enhance sustainability through circular economy initiatives, consumer recycling and participation remains low (Hvass & Pedersen, 2019). In response, fast fashion firms have employed various strategies to encourage consumer participation in take-back initiatives, including monetary incentives such as discounts and coupons (Seo & Jin, 2024). But economic considerations, such as price sensitivity and low perceived value of returning used clothing can discourage consumer participation (Liu, et al., 2024).

Ki, et al., (2020; 2021) suggests that consumer attitudes towards circular fashion are shaped by moral beliefs about corporate and individual responsibility. Positive perceptions of corporate moral responsibility have been shown to enhance consumer engagement with circular initiatives, such as take-back programs (Ki, et al., 2020; 2021). Though, corporate hypocrisy and scepticism about sustainability claims, often viewed as greenwashing, can negatively impact consumer attitudes. The gap consumers feel between the company's environmental goal and its actual practices diminishes their willingness to participate (Lee & Hur, 2024; Jung, et al., 2020; Wati, et al., 2024). Other factors such as attitudes (ex. level of awareness), subjective norms (ex. culture, peer influence), and perceived behavioral control (ex. accessibility, incentives) can also influence consumer behavior (White, et al., 2019). These elements collectively shape consumer behavior. Highlighting the complexity of fostering circular economy in the fashion industry (Wicaksono, et al., 2024) and the need for more effective ways to close the gap between consumers' attitudes and actual behaviors (White, et al., 2019).
While existing studies highlight multiple factors affecting consumers intention to textile recycling behavior, such as moral beliefs (Ki, et al, 2020; 2021), corporate responsibility (Lee & Hur, 2024; Jung, et al., 2020; Wati, et al., 2024), and economic incentives (Seo & Jin, 2024). It remains unclear what factors actually impact consumers to take action and not only increase their intentions or willingness to participate.

It can be stated that by 2025, that environmental awareness has increased (Centobelli, et al., 2022), consumers have become more willing to engage in circular initiatives (Musova, et al., 2021) and regulatory policies have evolved to support sustainability efforts

(European Commission, 2022). Firms have also been actively communicating on take-back initiatives. Addressing logistical challenges, convenience (Corvellec & Stål, 2019; Dissanayake & Weerasinghe, 2022), corporate image concerns, and issues related to greenwashing (Lee & Hur, 2024; Xiao, et al., 2022). Despite these developments, consumer behavior toward recycling clothing continues to be fragmented, and an important factor to investigate for the success of circular economy initiatives (Naturvårdsverket, 2024). In a Swedish study on a clothing brand´s take back program, it revealed low awareness and participation rates in the initiative. Despite the firm's increased efforts in involving consumers with the program (Hvass & Pedersen, 2019). Studies done in China and the US have attempted to explain why the same remains a challenge in their regions, (Seo & Jin, 2024; Shao & Lassleben, 2021; Xiao, et al., 2022). Low awareness and consumer participation rates indicate potential gaps in the take-back system. This presents an opportunity to understand the different dimensions such as attitude, social, external factors affecting the behavior of participating in recycling clothing and how to increase engagement.
The dynamic nature of the fast fashion market in Sweden, its environmental impact, its ongoing implementation and shifts in corporate sustainability strategies, and the unique challenges the industry face when trying to engage consumers in circular initiatives. Suggest that there is a need to reassess consumer behavior in this specific industry and geographic context (Brydges, 2021). Understanding consumer behavior is essential for effectively engaging them in the end-of-life phase of products (Hvass & Pedersen, 2019).

Identifying key factors impacting the consumer behavior and investigating the challenges mentioned from consumer responses can help inform better circular initiative strategies. By analyzing participation gaps, this research can gain concrete and practical insights into consumer attitude-behavior and identify specific challenges that hinder clothing recycling efforts with take-back programs in Sweden. Examining firms clothing take-back system from a consumer perspective can provide valuable information on what is working and what is not. An insight into consumer perceptions and experiences can help refine and optimize firm's clothing recycling systems, making them more efficient and user-friendly. These insights are not only crucial for businesses but also for societal efforts to develop more effective circular economy systems (waste management systems) and assist policymakers in designing more effective regulatory frameworks to promote textile recycling. This research will therefore answer the following questions:

1.3.1 Research questions

1. What factors influence consumer participation in fast fashion brands clothing take-back initiatives?
2. How can consumer participation in clothing take-back initiatives be effectively increased?

1.3.2 Purpose of the study

The purpose of this study is to explore consumer recycling behavior, on clothing take-back programs within the fast fashion industry, with a focus on Swedish consumers. To identify key factors that influence participation in clothing recycling with take-back programs and to understand how participation in such programs can be improved.

1.3.3 Aim

This research aims to:

- Identify and validate the factors that influence Swedish consumers participation (behavior) in clothing take-back programs.
- Understanding what limits consumer participation in take-back programs.
- Compare consumer motivations and suggestions with take-back strategies offered by leading fast fashion brands and identify potential solutions.

1.4 Delimitations

The primary focus of this study is on consumers and their clothing recycling behavior, particularly in relation to take-back programs offered by fast fashion firms. As a result, the study does not delve into the operational or logistical challenges that brands may face when implementing these initiatives. While circular economy efforts encompass a wide range of strategies, this study specifically examines take-back programs. Excluding other sustainability measures such as material innovation, supply chain optimization, or ethical labour practices.

The research is also constrained by its timeframe, analyzing current and recent take-back initiatives within the past 5 years rather than providing a historical overview of circularity efforts in the fashion industry. Moreover, the study follows a particular research methodology, employing a mixed research approach with both a quantitative and qualitative research. The findings with the chosen data collection, such as survey and case study are not generalizable to all consumer groups and firms. These delimitations ensures that the research remains focused and relevant while acknowledging its scope and limitations.

2.Literature Review

This section presents key theoretical concepts and prior research that inform the study. It explains fast fashion firms and discusses core ideas of circular economy, including cradle to grave vs cradle-to-cradle systems and post-consumer textile waste and recycling. The section also examines the impact of fast fashion and the role of take-back initiatives in promoting sustainable practices. It explores consumer behavior in the context of textile recycling, focusing on the attitude–behavior gap and the Theory of Planned Behavior (TPB). To identify attitudinal, social, and perceived external barriers to participation.

2.1 Defining Fast Fashion Firms

Fast fashion implies to a business model in the apparel industry characterized by rapid production cycles, low-cost manufacturing, and frequent product turnover. This model enables brands to quickly translate runway trends into affordable consumer clothing, often at the expense of environmental and social sustainability (Olivar, et al., 2024). Brands like Zara and H&M can move designs from conception to store shelves in as little as two to four weeks (Apontea, et al., 2024). New collections are introduced multiple times per season, sometimes even weekly, encouraging overconsumption and promoting a throwaway culture (Bick, et al., 2018). They do this by monitoring real-time consumer trends and social media to adapt quickly, ensuring high turnover rates in stores (Joy, et al., 2015). To meet constant demand, these companies produce in large quantities, often leading to overstock and waste (Niinimäki, et al., 2020). The term “fast fashion” draws parallels to “fast food”—both prioritize speed, convenience, and affordability over quality and sustainability (Byun & Sternquist, 2008).

2.1.1 Criticism and Environmental Impact

The production of textile and fashion industry operates through a long and complex supply chain. Beginning with agriculture and petrochemical production for fiber manufacturing, followed by manufacturing, logistics, and retail (Niinimäki, et al., 2020). Each stage of production has been heavily criticized for its total environmental footprint, including high water consumption, chemical pollution, and the generation of significant amounts of post-consumer waste (Bick, et al., 2018).

The “fast” aspect refers not only to the production process but also to the short lifespan of garments, leading to increased disposal rates and challenges for circular economy efforts (Dissanayake & Weerasinghe, 2022). It is confirmed that the industry generates over 92 million tonnes of waste yearly, a lot of which is incinerated, sent to landfills, or exported to developing countries (Niinimäki, et al., 2020).

2.1.2 Circularity in the Fashion Industry

The circular economy (CE) framework has become central to discussions on sustainability, particularly in industries like fashion, where environmental impacts are significant (Apontea, et al., 2024). The CE model aims to reduce waste and maximize resource efficiency by keeping materials in circulation for as long as possible. Counteracting the traditional linear economy model (Kirchherr, et al., 2017).

According to the Ellen MacArthur Foundation (2013), circularity is founded on three core principles; remove waste and pollution entirely, circulate products and materials (at their maximum value) and regenerate nature. The principles offer a systemic shift away from the "take-make-waste" paradigm, encouraging industries to design products that stay in use longer, promote reuse, and minimize environmental harm (Ellen Macarthur Foundation , 2022).

2.2 Cradle-to-Grave vs. Cradle-to-Cradle

To transition or change from a linear economy to a circular model it means to make a fundamental change in how materials are used and managed. The linear economy follows a "cradle-to-grave" model, where resources are extracted, used, and ultimately discarded as waste (Stahel, 2020). It's an approach that contributes to resource depletion and environmental degradation. In contrast McDonough and Braungart (2002) have introduced the "cradle-to-cradle" concept, emphasizing closed-loop systems where waste becomes a resource. In this model, materials are either biodegradable (returning safely to the environment) or technically recyclable (continuously reused without degrading quality), promoting true circularity (McDonough & Braungart, 2002). Recycling strategies in fashion involves transforming old garments into new fabrics or products. But challenges such as fiber degradation, blended materials, and inefficiencies in textile collection hinder large-scale recycling efforts (Sandin & Peters, 2018). For the average consumer in the fast fashion industry, cradle-to-cradle translates to practices that allow products or materials to be, reused or reborn as new items, reducing landfill waste and conserving resources (Henninger, et al., 2020).

2.2.1 Post-Consumer Waste and Textile Circularity in Sweden

While the cradle-to-cradle model is an ideal framework for circularity, its practical implementation in the fashion industry remains challenging. One of the most pressing issues is managing post-consumer textile waste, an important component of closing the material loop in circular fashion systems. Post-consumer waste (PCW) refers to discarded clothing and textiles after their initial use. Managing PCW is essential for achieving circularity in the fashion industry, which generates vast amounts of waste annually (Niinimäki, et al., 2020). In Sweden consumers are, despite strong environmental policies (European Environment Agency, 2024) and high public awareness (Andersson, 2016), not recycling textile in an optimal matter. Meaning that many used textiles are not properly sorted, leading to significant volumes being incinerated instead of being reused or recycled (Naturvårdsverket, 2024). One of the primary barriers in Sweden has been the absence of a nationwide textile collection system, preventing effective waste separation at the consumer level. Though Sweden have recently implemented a new law on textile waste, aiming to improve sorting, reuse, and recycling efforts (Naturvårdsverket, 2024). The main and most important thing would be to also encourage active participation from consumers in sustainable disposal practices (Mariani, 2016). Trade policies and regulations are among the most effective solutions for large-scale changes in the fast fashion industry. However, consumer behavior plays a vital role in supporting companies that minimize their negative impact on humans and the environment (Bick, et al., 2018).

The conscious consumption of consumers and changing the fast-fashion mentality is an important step to reduce the amount of waste, to begin with (Kahoush & Kadi, 2022).

2.2.2 Clothing Take-Back Initiatives in Fast Fashion

One-way fast fashion brands seek to engage consumers in circular practices is through clothing take-back initiatives. These programs encourage customers to return used clothing for recycling, resale, or donation, aiming to close the resource loop in fashion (Brydges, 2021). Brands often incorporate financial incentives, such as discounts on new purchases to encourage consumer participation in take-back programs (Stål & Corvellec, 2018). Hvass & Pedersen (2019) who has extensively studied Swedish brands clothing take-back programs, have identified three main types of in-store take-back setups:

1. Independent in-store collection (managed directly by the retailer)
2. Partnerships with charities (where collected items are donated)
3. Collaborations with professional collectors/service providers

Take-back initiatives have gained traction as brands trying to address their environmental impact and to meet consumer expectations for sustainability (Seo & Jin, 2024). While these initiatives enhance brand image and foster customer loyalty, they have also been criticized for functioning more as marketing strategies rather than genuine efforts toward circularity. As of now, in-store take-back activities are voluntary and not legislatively mandated, leaving their success on retailer commitment. However, they represent a step toward promoting circular initiatives and engaging consumers in sustainable practices (Hvass & Pedersen, 2019).

2.3 Recycling behavior through the lens of the TPB

To engage consumers in sustainable practices it is important to understand their perceptions and behaviors. The TPB by Ajzen (1991) provides a thorough framework for understanding consumer decision-making and behavioral intentions. TPB implies that behavior is influenced by key factors: attitude, perceived behavioral control (PBC) and subjective norms (Ajzen, 1991). In the context of textile recycling, these factors shape individuals' intention to participate in sustainable disposal practices (Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021). This literature review explores textile and clothing recycling behavior through the TPB framework, classifying the influencing factors accordingly.

2.4 Attitudes Toward Textile Recycling

Attitude in the TPB refers to an individual’s overall evaluation of a behavior, shaped by their beliefs about its consequences (Ajzen, 1991). For example, positive attitudes arise when consumers perceive benefits such as waste reduction and environmental conservation (Geiger, et al., 2019; Xiao, et al., 2025). Ajzen (1991) emphasizes that these beliefs about the consequences of an action play a key role in forming a person’s attitude, which can influence their intentions and then their behavior.

2.4.1 Environmental knowledge

Considering the challenges in textile recycling highlighted by various researchers, one key issue is the lack of awareness and education about circular economy principles (Dissanayake & Weerasinghe, 2022). For one instance many consumers assume that textile waste is automatically recycled or downcycled, reducing their motivation to engage in formal take-back programs. In other circumstances they are uninformed of the environmental impact textile waste has and the benefits of recycling. As a result, they may not prioritize textile recycling and dispose of textiles in their general waste (Abrishami, et al., 2024). It is known that consumers often lack awareness of the available recycling pathways and have limited education of the environmental benefits and processes of textile recycling, which can lead to a gap between their intentions and actual behavior (Paço, et al., 2021). Jena & Sarmah (2015) emphasized the importance of education in fostering a sense of responsibility. Conversely consumers with a strong environmental identity and personal moral responsibility toward sustainability are more likely to engage in recycling (Lin & Chen, 2022; Yue, et al., 2020; Clayton & Czellar, 2023) and towards textile recycling (Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021). This entails that recycling aligns with their core values, creating a more positive attitude toward participating in circular initiatives. In textile recycling, environmental attitudes positively affect the willingness of consumers to participate in brand led recycling program (Shao & Lassleben, 2021). Environmental knowledge plays a crucial role in shaping consumer attitudes. Both subjective and objective knowledge about recycling is positively associated with recycling behavior. As individuals who feel confident in their understanding and possess factual knowledge are more likely to participate in recycling initiatives, including clothing recycling programs (Xiao, et al., 2025).

Due to the limited research on brand-led take-back programs, our study will examine the role of environmental knowledge as an influencing factor on consumer participation in clothing recycling initiatives. Thus, we propose the following hypothesis:

H1: Knowledge of the environmental impacts of textile recycling, positively influences consumers participation in clothing take-back programs.

2.4.2 Convenience

Convenience also plays an important role in shaping attitudes and behavior (White, et al., 2019). According to Abdallah, et al., (2024) consumers prefer easy and effortless disposal methods, making accessibility a key determinant (Abdallah, et al., 2024). Many sustainable actions are perceived as inconvenient, time-consuming, or difficult to implement, which can act as a barrier to their adoption. To encourage sustainable habits, it is important to lower these perceived barriers and make sustainable actions more accessible. Changes that make engagement in sustainable behaviors easy, can significantly increase participation. Contextual changes that simplify engagement in sustainable behaviors can significantly increase participation. For example, placing recycling bins in easily accessible locations, reducing the complexity of sorting recyclables, and providing user-friendly sustainable alternatives—have been found to enhance sustainable behavior adoption (White, et al., 2019). Seo & Jin (2024) also found that consumers prefer convenient and effortless disposal methods, even for

environmentally friendly actions. The convenience of clothing take-back programs means simplifying the process by allowing consumers to drop off or mail in items. To avoid tasks like listing, communicating with buyers, and handling shipping. Where brands take responsibility for disposal and making participation easy. Easy access and minimal effort significantly influence participation in clothing take-back programs. On the contrary, inconvenience discourages sustainable clothing disposal and increases the likelihood of discarding clothing (Seo & Jin, 2024). In the context of clothing recycling, convenience plays a crucial role in determining consumer participation in take-back programs. If recycling processes are perceived as easy and hassle-free, consumers are more likely to engage. Thus, we propose the following hypothesis:

H2*:* The perceived convenience of recycling programs positively influences consumers participation in clothing take-back initiatives.

2.4.3 Greenwashing

However, negative attitudes towards brands sustainable initiatives arises due to scepticism about corporate sustainability efforts often labelled as greenwashing (Riva, et al., 2024). The definition of greenwashing involves falsely promoting an organization's environmental efforts or investing more in marketing sustainability claims than in actual environmentally responsible practices (Becker-Olsen & Potucek, 2013). Xiao, et al., (2022) argues that greenwashing besides false advertising (misleading eco-friendly claims), also includes claims without proof (unsupported sustainability statements), and selective disclosure (highlighting positive efforts while hiding harmful practices). The two definitions complement what the other is missing and gives a holistic view of the meaning of greenwashing. Essentially, greenwashing occurs when a company highlights a single positive initiative or a minor aspect of its operations while concealing the broader negative environmental impacts (Becker-Olsen & Potucek, 2013). In the fashion industry, greenwashing is evident in claims of sustainability that lack substantial impact. Examples include brands promoting small, eco-friendly collections while the majority of their production remains unsustainable. Downcycling materials instead of prioritizing fiber-to-fiber recycling, or marketing take-back programs that may encourage guilt-free overconsumption rather than meaningful circularity. Many brands claim to support sustainability products, by promoting recycling and reusing textiles. In reality, these efforts often fail to incorporate true circularity in design, material sourcing, and recycling processes (Adamkiewicz, et al., 2022). For example, they may advertise take-back programs, but if the collected clothes aren't actually recycled into new garments (fiber-to-fiber recycling), the initiative lacks real impact. According to Szabo & Webster (2020) when consumers fail to trust a firm’s green claims, they perceive risk in its environmental performance, which diminishes their willingness to engage with the brand. This is because they perceive the brand as hypocritical which then leads them to avoid the brand altogether (Xiao, et al., 2022). Furthermore Riva, et al., (2024) added that consumer distrust in a brand's sustainability claims is a complex manner. But it can reduce participation in sustainable initiatives as the irresponsible environmental behaviors of companies contribute to growing uncertainty and scepticism about the true environmental performance of the brand. Summarizing the different authors, if consumers don’t trust

brands sustainability claims it can influence their participation in sustainable initiatives. Since clothing take-back initiatives are considered a part of sustainability initiative in the fashion industry, we hypothesize:

H3: Distrust in the sustainability claims made by brands, negatively influences consumers participation in clothing take-back initiatives.

2.5 Subjective Norms

Subjective norms in the TBP refer to the perceived social pressure (peer, community, media, influence) to perform or abstain from a behavior (Ajzen, 1991).

2.5.1 Social Influence

People are influenced by the behaviors and expectations of those around them, such as family, friends, or society at large. Social and cultural influences have shown to significantly impact recycling behavior, as individuals are more likely to recycle when their peers, family, or community members support sustainable practices (White, et al., 2019; Teerakapibal & Schlegelmilch, 2024). However, even though society and culture shape environmental behavior, people's actions towards sustainability can vary depending on their age and demographic background (Desrochers & Zelenski, 2022; Jagers & Matti, 2010). In Sweden, where sustainability is embedded in societal values, peer influence plays a crucial role in promoting recycling (Berglund, et al., 2022; Olsson, 2018). Based on these understandings, we develop the following hypothesis:

H4: Social norms, such as peer influence, positively affect consumers participation in clothing take-back programs.

2.5.2 Media Influence

The role of media and marketing is crucial in promoting clothing take-back programs. Campaigns such as H&M's "Don't Let Fashion Go to Waste," "Bring It to Your Local H&M Store," and the "H&M Conscious" initiative leverage effective communication strategies to engage consumers (Corvellec & Stål, 2019). Social media is a great tool for spreading awareness, especially midst younger consumers who are more receptive to sustainability messages (de Freitas Netto, et al., 2020). However, several studies have shown that inconsistent or overwhelming sustainability information can lead to consumer disengagement (Pernice, et al., 2023; Xu & Han, 2021). The take-back system in the fashion industry has shown to serve dual purpose. It acts as both a marketing tool and a sustainability initiative. While brands promote sustainability through take-back programs, they simultaneously push narratives of constant consumption with frequent new collections, sales, and discounts, which risk undermining the sustainability message (Stål & Corvellec, 2018). Hvass & Pedersen, (2014; 2019) found that even though brands had invested in marketing and storytelling to engage consumers in the take-back process, many consumers reported low awareness of these initiatives. This raises the question of whether dual messaging — promoting both sustainability and consumption — was the factor that contributed to consumer disengagement from brands' sustainability efforts. In an article by Costantini & Costantini (2022) it is mentioned how the readability of

sustainability-related information on apparel brands websites, especially fast fashion brands, can act as a barrier to consumer understanding. As sustainability becomes more important to consumers, their ability to access and comprehend relevant information is crucial. If sustainability messages are too complex or unclear, consumers may struggle to understand a brand's initiatives, reducing their ability to make informed decisions (Costantini & Costantini, 2022). Concluding several research understandings we develop the following hypothesis:

H5: Inconsistent sustainability messaging negatively impacts consumer participation in brands clothing take-back initiatives.

2.6 Perceived Behavioral Control (PBC)

Perceived behavioral control means an individual's belief in their capacity to perform a behavior based on external constraints (Ajzen, 1991).

2.6.1 Recycling Accessibility

In textile recycling, accessibility and infrastructure are really important factors in determining participation rates. It is indicated that the availability of convenient recycling facilities increases engagement. In cities where textile recycling bins are easily accessible, participation rates rise significantly (Gwozdz, et al., 2017). Naturvårdsverket (2024) reports that before 2025 in Sweden there has been an absence of a nationwide textile collection system. Meaning that a large proportion of used textiles ended up in unsorted household waste, highlighting a gap between infrastructure and consumer behavior.

2.6.2 Economic and Environmental Incentives

Financial incentives have been explored as a means to increase perceived control (White, et al., 2019). In clothing take-back programs, these benefits come in the form of store credit or discounts for returning used items and encouraging future purchases (Hvass & Pedersen, 2019). Economic benefits play a key role in motivating consumers that are often driven by financial incentives. Brands like H&M offer store discounts for returned clothes, which have been shown to encourage recycling (Seo & Jin, 2024). While financial incentives are often used to encourage participation in clothing take-back programs, research presents mixed findings on its effect. Abila & Kantola (2019) also found that financial incentives are effective in Finland, whereas Hvass & Pedersen (2019) noted that similar incentives in Sweden did not significantly impact participation in take-back programs. Additionally, Sun & Asari, (2023) found that financial incentives were only effective in the early stages of consumer engagement.

Alongside financial rewards, environmental benefits are also key motivators, particularly for consumers with strong environmental values. These benefits include reducing textile waste, conserving resources, lowering carbon footprints and working with non-profit organization such as local charities. In such cases, participation is driven by internal motivations, such as moral satisfaction and the avoidance of environmental guilt (Seo & Jin, 2024). Findings from Hvass & Pedersen's (2019) study revealed that return rates remained low despite inclusive take-back policies and financial incentives, showing that

transactional rewards alone may not be sufficient to drive meaningful participation. Wikström (1996) and Lüdeke-Freund (2009) suggested that for long-term engagement consumers must see themselves as active, responsible partners in the value creation process. For example, in this context as active participants in the recycling and reuse process rather than passive recipients of incentives. Either way financial incentives like discounts and cash rewards can encourage sustainable behaviors, such as recycling. However, their effects may be short-term, especially smaller monetary rewards that are often less motivating than other types of incentives, such as perceived environmental benefits (White, et al., 2019; Seo & Jin, 2024). Given the mixed evidence in existing research, it is important to investigate whether perceived economic and environmental incentives have a significant influence on consumers participation. This can provide deeper insights into the motivational drivers behind consumer behavior in take-back programs. Based on the different findings we develop the following hypothesis.

H6: Perceived incentives—economic and environmental positively influences consumers participation in clothing take-back programs.

2.7 Factors Influencing Clothing Recycling Behavior Through the Lens of TPB

This table provides a structured overview of the different factors influencing clothing recycling behavior and the take-back program participation based on the TPB. It helps with forming several research findings in a relevant and structured manner.

TPB Component	**Factors influencing Textile Recycling Behavior**	**Key References**
Attitude	Lack of awareness about environmental impact of textile waste.	(Lin & Chen, 2022; Yue, et al., 2020; Clayton & Czellar, 2023; Shao & Lassleben, 2021; Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021; Xiao, et al., 2025)
	Misconceptions about textile waste management (assuming automatic recycling)	(Abrishami, et al., 2024; Dissanayake & Weerasinghe, 2022; Paço, et al., 2021)
	Perception of inconvenience in recycling	(Abdallah, et al., 2024; Seo & Jin, 2024; White, et al., 2019)
	Distrust and scepticism toward corporate sustainability initiatives (greenwashing)	(Riva, et al., 2024; Becker-Olsen & Potucek, 2013; Xiao, et al., 2025; Adamkiewicz, et al., 2022; Szabo & Webster, 2020)

Subjective Norms	Peer influence and social pressure	(White, et al., 2019; Teerakapibal & Schlegelmilch, 2024; Berglund, et al., 2022; Olsson, 2018)
	Inconsistent media messaging	(Corvellec & Stål, 2019; Stål & Corvellec, 2018; de Freitas Netto, et al., 2020; Pernice, et al., 2023; Xu & Han, 2021; Hvass & Pedersen, 2019; Costantini & Costantini, 2022)
Perceived Behavioral Control (PBC)	Financial/Environmental incentives for participation	(White, et al., 2019; Hvass & Pedersen, 2019; Seo & Jin, 2024; Abila & Kantola, 2019; Sun & Asari, 2023)
	Limited access to convenient recycling infrastructure	(Gwozdz, et al., 2017; Naturvårdsverket, 2023)

Table 1*: TPB and key references*

2.8 Attitude Behavior Gap and TPB

Although consumers may hold positive attitudes, get influenced by supportive social norms, and feel a sense of control, various barriers continue to hinder their participation in textile recycling initiatives. Consumer's generally express positive attitudes toward pro-environmental behaviors, but they often fail to translate these attitudes into actual sustainable actions. This attitude-behavior gap between what consumer say and do presents a significant challenge for marketers, businesses, policymakers, and nonprofit organizations working to promote sustainable consumption (White, et al., 2019). The TPB was originally developed to predict behavioral intention (Ajzen, 1991), but it has been widely applied in research investigating actual behaviors, particularly in the field of sustainability (Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021). In this study, TPB's key constructs, attitude, subjective norms, and perceived behavioral control are utilized to explore consumers' participation e.g. recycling behavior in clothing take-back programs. Prior studies have shown that the TPB components can effectively explain self-reported behaviors, especially when intention closely aligns with action (White et al., 2019; Klöckner, 2013). Given that textile recycling is a voluntary behavior often influenced by internal attitudes and external social factors, TPB serves as a good framework for understanding the psychological drivers behind actual consumer recycling behavior. It has been validated as a robust theoretical model for explaining the factors influencing textile recycling specifically (Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021).

2.9 Theoretical framework

The literature review in the former section forms the foundation for this study's theoretical framework. It explains key factors that can influence consumer participation in take-back programs, particularly within the context of clothing recycling. These factors were selected based on their well-known significance in previous research on recycling behavior. Importantly, in line with the studies by Rosenthal (2018), Abila & Kantola (2019) and Xiao, et al., (2025), the present research focuses on examining the relationship between the independent variables (e.g., environmental knowledge, convenience, greenwashing also called distrust, peer influence, inconsistent messaging and incentives) and the dependent variable, which is actual recycling behavior/participation, rather than behavioral intentions alone. The conscious choice to focus on behavior e.g. participation as a dependant variable rather than intention/willingness to participate was made, to show real life context.

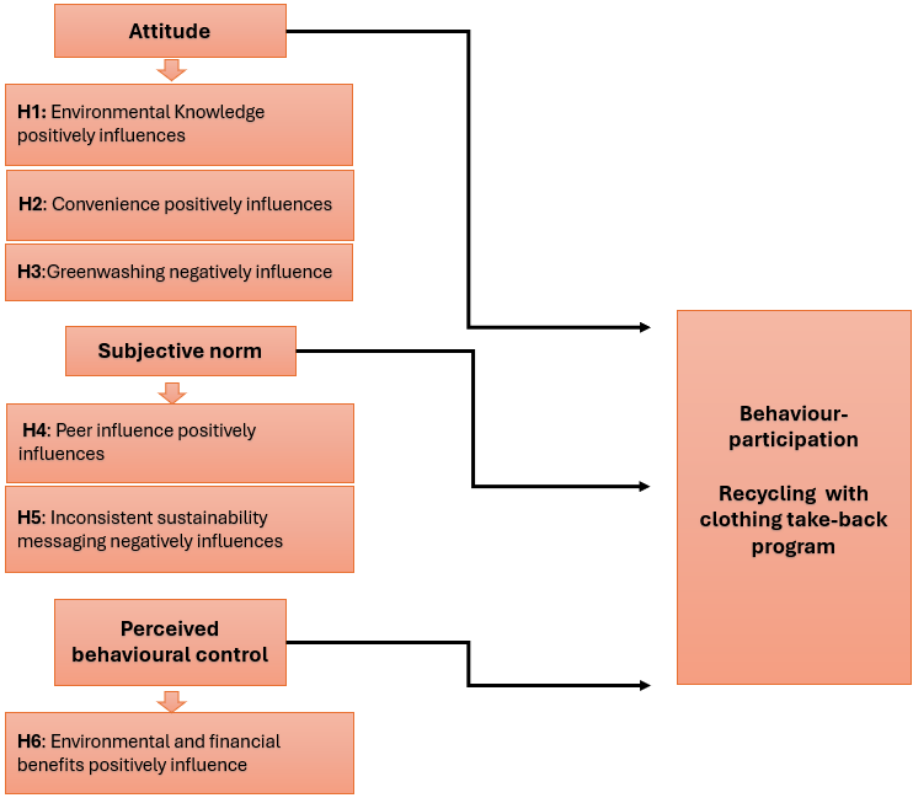

Figure 1: *Theoretical framework*

3.Methodology

This chapter outlines the methodological framework adopted in this study. It provides an explanation of the research paradigm, approach, design, method, data collection methods, and analytical methods used to build the quality of the study. The chapter is concluded with a discussion on the quality of the research, ethical consideration and authors contribution.

3.1 Research paradigm

In social research, the term "paradigm" is used to refer to the basic set of beliefs (philosophical assumption) that guide the actions and define the worldview of the researcher. Including views on knowledge (epistemology), reality (ontology), values (axiology), methodology and rhetoric (Denzin & Lincoln, 2005). It encompasses the conceptual and practical tools used to address specific research problems (Abbott, 2004). This research starts with the quantitative method often associated with post-positivism. Which is a series of logically related steps and is a highly formal rhetoric that focuses on precision, generalizability, reliability, and replicability (Creswell & Clark, 2011). Secondly, the focus moves to a case study approach on chosen brand's initiative, under the head of qualitative methods, which can be associated with constructivism. Constructivism is a research paradigm that assumes reality is socially constructed, meaning knowledge is created through individuals' experiences and interpretations of the world. The constructivist part of the study recognizes that, consumers don't just act based on measurable attitudes, they also interpret recycling programs differently depending on their experiences, values, and social context. Since this research employs both the above-mentioned methods, it can be explained as a mixed method research, which needs a paradigm that is a combination. Pragmatism is a research paradigm that aims to combine elements between traditional scientific methods and newer, more flexible, naturalistic approaches (Creswell & Clark, 2011). The pragmatic paradigm aligns well with this research on consumer participation in clothing recycling programs and understanding of brand initiatives. Pragmatism emphasizes practical problem solving and the use of methods that address the research question (Kaushik & Walsh, 2019). This approach, combining quantitative data collection to identify factors influencing consumer behavior with qualitative case studies of brands like H&M and Zara exemplifies the pragmatic principle of methodological flexibility. As Kaushik & Walsh (2019) suggests, pragmatism prioritizes actionable outcomes by integrating diverse methods to provide a comprehensive understanding of complex real-world issues. By focusing on both measurable trends and contextual insights our research leverages pragmatism's strengths to provide meaningful results that address sustainability challenges in the textile industry. This paradigm helps the findings to be both rigorous and applicable and bridges the gap between theory and practice in understanding and advancing clothing recycling efforts.

3.2 Research Approach

Before conducting a study, researchers must first determine whether to adopt a deductive, inductive, or a compromise approach such as abduction. Saunders, et al., (2019) describes a deductive approach as a form of reasoning that begins with a general theory or conceptual framework and proceeds by testing this theory through empirical observation and analysis. This approach follows a structured process. First, the research begins with an established theory, which provides a foundation for the study. Based on this theory, testable hypotheses are formulated. These hypotheses are then examined through data collection to observe and measure the relevant phenomena. Finally, the collected data is analyzed to either confirm or reject the hypotheses and contributing to the understanding or refinement of the original theoretical framework. It is commonly associated with quantitative research and is used to verify theoretical propositions in specific contexts. This approach is often used when the aim is to test existing theories rather than generate new ones (Mills, et al., 2010). This research predominantly follows a deductive approach by testing hypotheses derived from the theory of planned behavior through a structured quantitative survey.

Though, the following qualitative study analysis adopts elements of inductive reasoning. As it investigates how consumers perceive, and firms implement clothing take-back programs, to generate new insights that go beyond existing TPB constructs. An inductive approach is a research method where you begin by collecting data and observing patterns and then make conclusions based on that data. A purely deductive or inductive approach is rarely applied in isolation, and in fact, a mixed approach is more representative of how many researchers in business and management operate (Saunders, et al., 2019).

3.3 Research Design

The selection of a suitable research methodology and technique plays an important role in research design (Bell, et al., 2022). A research design acts as the blueprint for conducting a study, guiding the selection of methods and strategies that align with the research objectives (Bhatta, 2013). Furthermore, Creswell (2003) highlights the importance of choosing an appropriate design that ensures alignment between the research question, methodology, and data collection methods, enabling the researcher to derive meaningful and valid insights. By framing the study within a clear design, researchers can effectively bridge philosophical assumptions, strategies of inquiry, and data collection techniques. Thus, a research design can be defined as a plan that gives the fundamental structure to incorporate every element of a quantitative study so that the results are credible, free from bias, and generalizable (Creswell, 2003). A research design is the glue that holds the research project together (Hancock, et al., 2019).

This research, where the objective is to explore consumer behavior and brand initiatives, the research design determines the reliability and applicability of results. Thus, the research employs a mixed method which helps in answering the research question better. It starts with a quantitative method, and further a qualitative method is employed to get a dual perspective. So, the design planned for this research is an explanatory sequential design. This design is clearly important as it has use in both social and behavioral sciences

research (Ivankova, et al., 2006). Even though the mixed method gives a holistic view, the priority is a critical aspect, and it is the discretion of the authors to align that with the study. As highlighted by Ivankova, et al., (2006) in a sequential explanatory design, priority is typically given to the quantitative approach, as it is conducted first and often forms the main component of the mixed-methods data collection process (Ivankova, et al., 2006). Since the major purpose of the research question is to identify factors influencing consumer clothing recycling behavior. This design gives priority to the quantitative method where the consumer behaviors are captured through numerical data. Following this, the study uses qualitative data to explain or further explore the initial quantitative findings. Providing deeper insights into the underlying reasons and context behind the consumer behaviors observed.

3.4 Research Method

The mixed method research integrates both quantitative and qualitative approaches, leveraging their respective strengths to provide a more comprehensive understanding of the research topic (Bell, et al., 2022). Kelle (2006) emphasizes that the integration of methods allows researchers to validate findings and produce a coherent and complete picture of the domain being studied. By combining the structured, measurable insights of quantitative methods with the context-rich, nuanced perspectives of qualitative approaches, mixed methods address the limitations in using a single approach. This is particularly relevant for studies investigating complex behaviors and organizational practices, as it ensures a more holistic view (Kelle, 2006).

In quantitative research, the focus is to gather and analyze numerical data to identify patterns, test hypotheses, and make generalizations. It enables statistical analysis to examine the strength and direction of relationships between variables (Creswell, 2017; Saunders, et al., 2019). Kelle (2006) notes, quantitative analysis is essential for identifying patterns and correlations among variables, enabling researchers to measure and validate findings in a structured manner. Which clearly align with the research and intention of this study. To clearly understand the research topic, and to answer the first research question this study first employs a quantitative method. The quantitative data collection understands the factors influencing the consumer participation in brand's take-back program. This method is required for revealing relationships, offering objectivity and replicability in research findings (Kelle, 2006).

Qualitative research according to Saunders, et al., (2019) refers to any method of collecting or analyzing data that is non-numerical. That means it's not about numbers, percentages, or statistics — it's about words, meanings, experiences, and interpretations (Saunders, et al., 2019). As highlighted by Kelle (2006) qualitative research are particularly suited for exploring the complexity of organizational behavior and consumer experiences, offering access to culturally specific contexts and norms.
In this study, qualitative research complements the quantitative findings by providing contextual insights from survey questions. To explain or interpret the numerical results and also to uncover the "why" or "how" behind the data. Additionally, a case study of two

example brands, H&M and Zara, was conducted to examine their take-back programs and processes. By integrating qualitative data, this research captures the perceived consumer attitude-behavior and clothing recycling practices with brands. This dual perspective, comparing consumer insights with the brands' initiatives, offered a comprehensive analysis, particularly regarding clothing recycling and helped answering the second research question.

3.5 Data Collection Methods

Collecting data is a fundamental step in conducting research, as it provides the necessary information to investigate the research problem effectively. Without appropriate data collection aligned with the research design, it would be impossible to generate meaningful insights or reach valid conclusions (Mazhar, et al., 2021). This section is structured to understand how the data is generated and explains the instruments used, its design and empirical settings and furthermore sampling process. The type of data collection is both primary and secondary.

3.5.1 Primary data collection: Quantitative data generation

Primary data include the data that are collected for the first time and are original and fresh. It is defined by Bell, et al., (2022) as first-hand data directly collected by researchers. This methods in behavioral sciences include observation methods, questionnaires, and through database (Mazhar, et al., 2021). This research's first phase focused on collecting primary data through a self-administered questionnaire considering its advantage as mentioned by Bell, et al., (2022) as cheaper, faster and convenient.

3.5.2 Survey design

To investigate consumer perceptions and behaviors related to clothing recycling and fashion take-back initiatives, a self-administered questionnaire survey was developed with google form. The survey questions are divided in three parts a combination of yes/no questions, 5-point Likert scale questions, and closed-ended questions with an open ended "Other" option. Each question served as a purpose for understanding the consumer perception and intention on clothing recycling behavior and brand led take-back program. To make sure that all participants had a shared understanding of the subject, the questionnaire included a brief description of fashion take-back programs before moving into behavior-related questions. Overall, similar survey structure and measurement approach has been widely applied in previous research, including studies by Rosenthal, 2018; Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021; Seo & Jin, 2024; Abila & Kantola, 2019. The first section of the questionnaire collected demographic data from participants, including gender, age, and place of residence. The second section of the questionnaire included yes-or-no questions related to participants' awareness of clothing take-back programs and their actual participation in such initiatives. This served as the basis for measuring the dependent variable—participation behavior. Based on the responses, participants were categorized into three groups: regular participants, occasional participants, and non-participants. The third section had a combination of controlled

questions with an open-ended response option and a series of statements developed based on the TPB, specifically tailored to the context of fashion take-back programs. Respondents were asked to rate their agreement with the statements, using a five-point Likert scale varying from "strongly disagree" to "strongly agree." The Likert scale is widely known to capture subjective attitudes and perceptions in a quantifiable manner, making it particularly suitable for studies exploring psychological and behavioral constructs (Joshi, et al., 2015; Boone & Boone, 2012). The choice of a five-point Likert scale follows Johns (2010), who explained that although surveys can use anywhere from two to eleven points, five is common because it balances giving enough options and making things manageable for respondents (Johns, 2010).

In the closed-ended questions with an "Other (please specify)" option participants were asked about their current clothing disposal practices, motivations for participation, perceived barriers to engagement and suggestions for improvement. These contextual questions aimed to capture current engagement in clothing recycling, which provided a clearer picture of behavioral patterns and influencing factors.

3.5.3 Operationalization table

The operationalization table below, is used as a tool for translating the study's theoretical framework into measurable variables. It explains how each concept derived from the TPB —such as attitudes, subjective norms, and perceived behavioral control is empirically examined through the survey questions.

By structuring the concepts, the developed hypothesis, survey items, and scale types, the table helped ensure consistency and clarity throughout the data collection process. It also helped linking concepts like trust, convenience, and environmental knowledge to specific, observable indicators, making them measurable within the quantitative part of the study. This alignment made sure of the validity and reliability of the research, that the data collected could be analyzed and interpreted in a correct manner in relation to the research questions and theoretical model.

TPB Component and dependent variable	Factors influencing Textile Recycling Behavior	Hypothesis and controlled questions	Survey questions numbers (Appendix 3)	Variable & Measurement	Key References
Clothing recycling participation			4	Dependent variable- Yes, regularly/ Yes, but less/ No, never	(Seo & Jin, 2024; Hvass & Pedersen, 2019; Corvellec & Stål, 2019; Stål & Corvellec, 2018)
Motivation, barrier, and improvement		Descriptive statistics questions	5,6,19,20,21,22	Controlled question	
Attitude	Lack of awareness about environmental impact of textile waste.	H1: Knowledge of the environmental impacts of textile recycling, positively influence consumers participation in clothing take-back programs. H2: The perceived convenience of recycling programs positively influences consumers participation in clothing take-back initiatives. H3: Distrust in the sustainability claims made by brands, negatively influences consumers participation in clothing take-back initiatives.	11	Independent variable (IV)-Likert scale	(Lin & Chen, 2022; Yue, et al., 2020; Clayton & Czellar, 2023; Shao & Lassleben, 2021; Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021; Xiao, et al., 2025)
	Misconceptions about textile waste management (assuming automatic recycling)		12	(IV)-Likert scale	(Abrishami, et al., 2024; Dissanayake & Weerasinghe, 2022; Paço, et al., 2021)
	Perception of inconvenience in recycling		7	(IV)-Likert scale	(Abdallah, et al., 2024; Seo & Jin, 2024; White, et al., 2019)
	Distrust and scepticism toward corporate sustainability initiatives (greenwashing)		13,14,15	(IV)-Likert scale	(Riva, et al., 2024; Becker-Olsen & Potucek, 2013; Xiao, et al., 2025; Adamkiewicz, et al., 2022; Szabo & Webster, 2020)
Subjective Norms	Peer influence and social pressure	H4: Social norms, such as peer influence, positively affect consumers' participation in clothing take-back programs. H5: Inconsistent sustainability messaging negatively impacts consumer participation in brands clothing take-back initiatives.	17,18	(IV)-Likert scale	(White, et al., 2019; Teerakapibal & Schlegelmilch, 2024; Berglund, et al., 2022; Olsson, 2018)
	Inconsistent media messaging		16	(IV)-Likert scale	(Corvellec & Stål, 2019; Stål & Corvellec, 2018; de Freitas Netto, et al., 2020; Pernice, et al., 2023; Xu & Han, 2021; Hvass & Pedersen, 2019; Costantini & Costantini, 2022)
Perceived Behavioral Control (PBC)	Financial/Environmental incentives for participation	H6: Perceived Incentives—economic and environmental positively influence consumer participation in clothing take-back programs.	9,10	(IV)-Likert scale	(White, et al., 2019; Hvass & Pedersen, 2019; Seo & Jin, 2024; Abila & Kantola, 2019; Sun & Asari, 2023)
	Limited access to convenient recycling infrastructure		8	Controlled question	(Gwozdz, et al., 2017; Naturvårdsverket, 2023)

Table 2: Operationalization table

3.5.4 Sampling

This study used voluntary response sampling, which is a type of non-probability sampling, where individuals choose to participate rather than getting randomly selected (Cheung, et al., 2017). It is a widely used approach in research where the objective is to gather data quickly and cost-effectively. One of the main advantages of this method lies in its cost efficiency and practicality (Andrade, 2021), as well as its ability to overcome accessibility and time constraints (Jager, et al., 2017). While this approach ensures ethical considerations and enhances participant engagement, it can introduce sampling bias as it may not ensure representativeness of the wider population, the findings can still provide valuable insights and contribute to theoretical and managerial implications for future research (Cheung, et al., 2017).

Data was collected through a web-based survey created using Google Forms. The survey link was distributed via various online platforms, including WhatsApp, LinkedIn, and Instagram. The authors believe that these digital platforms are widely used, accessible, and capable of generating diverse, reliable, and valid responses for this study. Data was collected through a web-based survey created using Google Forms. The survey link was distributed via various online platforms, including WhatsApp, LinkedIn, and Instagram. The authors believe that these digital platforms are widely used, accessible, and capable of generating diverse, reliable, and valid responses for this study.

To enhance visibility and distribution, both a survey link and a QR code were created and shared across the mentioned platforms. Multiple strategies were employed to encourage participation and build respondent trust. Such as clearly stating that the survey was part of an academic study, ensuring confidentiality, thanking participants for their involvement, and framing the survey as a request for their valuable input.

A pre-test of the questionnaire was conducted with 11 participants to assess clarity, readability, and remove any potential ambiguity. Based on feedback, no major modifications were required, except for the adjustment of a question that automatically submitted the form if the respondent indicated they were not residing in Sweden. Since the test responses did not compromise data accuracy or introduce bias, all responses, including pre-test entries were retained in the final dataset.

The online survey was open from March 27, 2025, to April 16. Participants were informed about the purpose of the study, the anonymity of their responses, the estimated time required, and that participation was voluntary, with the option to withdraw at any time. All questions were marked as mandatory to ensure data completeness.

A total of 142 people participated in the survey, out of which 138 responses were considered valid for analysis after initial screening.

3.5.4 Empirical settings

The empirical setting is vital to obtain the relevant data for the study. Therefore, it is important to choose the relevant setting to get a representative sample (Bell, et al., 2022). The aim of this research is to understand and test the factors influencing consumer participation in brand-led take-back programs irrespective of age or demographic profile. To ensure inclusivity and gain a broader understanding, the survey was open to all age

groups and demographics within Sweden. The geographic focus on Sweden was intentional, given the country's high levels of environmental awareness. According to Linde´n & Carlsson-Kanyama (2003) Swedish communities exhibit a strong sense of environmental responsibility, making them relevant respondents for this study.

3.5.5 Secondary data collection: Qualitative data

For understanding the findings from the quantitative phase, the second phase involved a qualitative case study of two major fashion brands: H&M and Zara. The method employed is secondary data collection through case study and it gives an opportunity to investigate issues further (Taherdoost, 2021). Secondary data is the data collected from published sources meaning that the data is already collected by someone else for another reason and can be used in a research as well (Taherdoost, 2021). For this study, publicly available secondary data was manually collected from H&M and Zaras official websites and social media accounts (Instagram), covering content published up until May 2025.

3.5.6 Case study

The case study approach is a very strong method in qualitative data collection due to its ability to provide an understanding of a complex phenomenon within their real-world context (Runfola, et al., 2016). In qualitative research, the case study approach provides a versatile and comprehensive method to uncover insights that might be overlooked in other methodologies. Its importance lies not only in its ability to analyze complex scenarios but also in its contribution to theory and practice (Runfola et al., 2016). Two fast fashion brands Zara and H&M were selected as examples, because they are leading brands in Europe (Statista, 2025) and due to their active implementation of take-back and clothing recycling initiatives in Sweden (Zara, 2025; H&M, 2025). The purpose of the case study is to give a real-life example of brands clothing take-back programs and also how they communicate on them. This to show how these brands are currently addressing the consumer challenges identified in the survey. A tabular presentation will be used to present their strategies.

3.6 Data analysis method

Data analysis involves systematically using statistical and logical techniques to describe, summarize, and evaluate data (Zikmund, et al., 2010). In this study, the data collected from the online survey was first cleaned using Microsoft Excel. Data cleaning involved removing incomplete or inconsistent responses, checking for duplicates, and ensuring that all entries were coded correctly, a necessary step to enhance data quality and reliability (Hair, et al., 2014). Key changes in the data are summarised in the table Appendix 1 which also include the changes in categorical responses and Likert scale responses (e.g. participation multi choice questions are changed to binary Yes/ No, and 5-point Likert scale are recoded to 3-point scale to improve the analytical clarity and minimise response bias in SPSS).

Following data preparation, the cleaned dataset was imported into the SPSS programme (Statistical Package for the Social Sciences), a widely used software for quantitative data

analysis in social sciences research (Pallant, 2020). Means, frequencies and standard deviations also called descriptive statistics (Bell, et al., 2022) were calculated to give an overall view of the demographic profile and behavioral tendencies of the respondents.
To explore the relationships between key variables, binary logistic regression analysis was applied. Binary regression analysis helps to identify the strength and direction of relationships between variables (Field, 2013). These methods were appropriate for evaluating the hypothesis and getting insights into factors influencing consumer participation in clothing take-back programs.
For the second part of the study a thematic analysis was employed, it involved the surveys, controlled questions with an open-ended "Other" option, and a case study. A thematic analysis means identifying, analyzing and reporting patterns within data. It organizes and describes the data set in detail. It often also goes further than this and interprets several and different aspects of the research topic (Braun & Clarke, 2006). Responses from the survey were manually reviewed and grouped based on emerging themes and patterns that aligned with the study's aims. This approach allowed for the identification of repeated insights, attitudes, barriers and motivational factors regarding participation in take-back programs. These pattern findings were then compared to current firms' clothing take-back initiatives, to give solutions for increasing participation. The findings complemented the quantitative SPSS results by offering more nuanced understanding of consumer barriers, motivations and suggestions for improvement.

3.7 Research Ethics

Research ethics implies to the moral principles guiding all stages of the research process, from the formulation of the research question to the application of findings. This study was done in accordance with established ethical research principles: avoidance of harm, informed consent, privacy and preventing deception. It is not a step isolated before or after data collection—it is embedded in the entire research methodology and practice (Bell, et al., 2022; Saunders, et al., 2019). Participants were informed about the purpose of the study, their rights, and how their responses would be used. The participation in the survey was voluntary, and consent was obtained prior to participation, ensuring voluntary and informed involvement. No sensitive personal data, as defined by the General Data Protection Regulation (GDPR), was collected. All responses remained anonymous. Transparency was held throughout the research process. No misleading information or hidden objectives were presented. Participants were aware of the purpose of the study. The study avoided any form of deception and was carried out with respect for all participants.

3.8 Research Quality – Reliability and Validity

Ensuring research quality is crucial in any study, especially when conducting empirical research involving data collection through surveys. To establish the trustworthiness and scientific rigor of this research, both reliability and validity were assessed throughout the research process, these are the two main research quality criterions for a quantitative study (Bell, et al., 2022).

Reliability implies to the consistency and stability of a measurement instrument over time (Saunders, et al., 2019), while validity concerns the degree to which an instrument accurately measures what it is meant to measure (Bell, et al., 2022). In this study, reliability was ensured through the careful construction of the survey instrument. Multiple items were included for each construct, drawn from established scales in the literature—particularly those aligned with the TPB (Ajzen, 1991)—to ensure internal consistency.
As mentioned, a pilot study with 11 respondents was conducted, the data was subsequently cleaned and analyzed to check the clarity, relevance, and comprehensibility of the items.

Reliability Statistics

Cronbach's Alpha	N of Items
.647	11

Reliability Statistics

Cronbach's Alpha	N of Items
.704	9

Table 3: Cronbach's alpha test

Internal consistency of the survey constructs was assessed using Cronbach's alpha. The initial results showed alpha values ranging from 0.63 to 0.71, with an overall Cronbach's alpha of 0.647. After removing two items—one related to environmental knowledge and the other to inconsistent sustainability messaging, the overall value improved to 0.70. This aligns with the commonly accepted threshold of 0.70 for reliability, as recommended by Bell, et al., (2022). A detailed breakdown of the Cronbach's alpha values on each variable and item-total statistics is provided in Appendix 2: table 36.
In this study, validity was addressed in several ways. Content validity was ensured by developing survey items based on well-established constructs from previous studies, including Rosenthal (2018), White et al., (2019), Vilkaite-Vaitone & Jeseviciute-Ufartiene (2021), Seo & Jin (2024), and Abila & Kantola (2019). These sources informed the development of items related to attitudes, subjective norms, perceived behavioral control, within the context of clothing recycling.
Furthermore, to assess common method bias, Harman's single-factor test was conducted using exploratory factor analysis. The results showed that the first factor reported for only 27.4% of the total variance (Appendix 2: table 37), this is well below the recommended threshold of 50% (Harman, 1976). This indicates that common method bias is most likely not to pose a significant threat to the validity of the findings.

3.9 Authors contribution

This thesis has been written by two authors, both have contributed to the research equally. Collaboration throughout the paper was held with respect and trust and tasks on each chapter of the paper was divided to each other's strengths and interest. Both authors found quality to be important and continuously checked so there was alignment between the chapters and the overall research question. Supervision sessions were also planned and completed to help with the paper's development. Communication between the two authors was carried regularly to discuss the different parts, how to improve and move forward. Both virtual and physical meetings were held.

4.Findings

This chapter examines the empirical results and findings of the study, presenting and justifying each hypothesis through data analysis that include regression analysis. Through these techniques, the chapter provides a detailed examination of the study's outcomes and implications. Each hypothesis has been tested and will be explained and stated through the statistical data analysis tool: SPSS. Further descriptive statistics from consumer responses and case study findings from Zara and H&M are presented.

4.1 Sample characteristics

The descriptive statistics provide initial insights into the overall tendencies and variation in responses (Kaur, et al., 2018). Which form the basis for further hypothesis testing using binary logistic regression. This calculated for the key variables to understand the central tendency and distribution. For this a total of 138 valid responses were included in the analysis and descriptive statistics such as mean and standard deviation (SD) were used. The mean indicates the average response for each variable, helping to summarize the central tendency of participant opinions. The standard deviation reflects the variability in response (Bell, et al., 2022).

Descriptive Statistics

	N	Mean	Std. Deviation
B_Awareness	138	.64	.480
B_Participation	138	.22	.419
Convenience	138	2.12	.820
Financial_Incentive	138	2.36	.792
Environmental_Incentive	138	2.64	.627
Env_knowledge1	138	2.36	.790
Env_Knowledge2	138	1.33	.620
Brandtrust	138	2.15	.819
Brand_claim	138	1.87	.781
Inconsistent_messages	138	2.35	.658
Peer_Influence	138	1.57	.744
Peer_Motivation	138	2.24	.769
Valid N (listwise)	138		

Table 4: Sample characteristics

As shown in Table 3, the mean scores for the independent variables ranged from 1.33 (Environmental Knowledge 2) to 2.64 (Environmental Incentive), indicating varying levels of agreement among respondents. The standard deviations ranged from 0.48 (Awareness) to 0.820 (Convenience), reflecting moderate dispersion in responses. The dependent variable, participation, had a mean of 0.22, indicating that 22% of respondents reported participating in take-back programs.

4.2 Regression Analysis

According to Harrison, et al., (2020) regression analysis is a statistical technique used to explore the relationship between a dependent variable one or more independent variables. It enables the prediction of outcomes based on existing patterns within the data. In this research, regression was employed not only to test the hypothesized relationships but also to predict consumer participation in clothing recycling programs based on various influencing factors. This method is particularly good when making inferences or predictions that extend beyond the observed data range (Harrison, et al., 2020). Offering insights into potential behavioral patterns among consumers.

In this study, regression analysis was employed to test the hypothesized relationships and to predict consumer participation in clothing recycling programs based on influencing factors such as knowledge, convenience, brand trust, social norms, inconsistent sustainability messaging, and perceived incentives. Furthermore Harrison, et al., (2020) stated that logistic regression can be used when the grouping (dependent) variable has two categories. In situations where the outcome variable consists of just two categories, such as "Yes" or "No" participation, binary logistic regression is the appropriate analytical method. In this study, since the dependent variable measures consumer participation in brand-led clothing recycling initiatives as a binary outcome, the binary logistic regression technique was employed. This method not only tests the influence of independent variables on a dichotomous outcome but also calculates the odds ratios to interpret the strength and direction of each predictor.

4.3 Testing hypothesis

To evaluate each hypothesis, a logistic regression is conducted since it computes the log odds that a particular outcome will occur (Harrison, et al., 2020). In order to determine whether the independent variables included in each hypothesis meaningfully contribute to predicting the likelihood of consumer participation in clothing recycling programs a binary logistic regression is conducted. It is a type of regression analysis used when outcome is binary and independent variables are quantitative or qualitative. Considering this study which has binary dichotomous outcome and categorical predictors the specific test is employed (Hosmer, et al., 2013). The result is based on the following tables:

Omnibus Test of Model Coefficients: Omnibus tests are general tests of how well the model performs (Harrison, et al., 2020). This test compares the model that includes all selected independent variables (such as convenience, trust, peer influence, etc.) to a model that contains none of them (essentially, a model that makes predictions without any input). This test helps in understanding the overall effect of one or more independent variables on a dependent variable. If the result of the omnibus test is statistically significant ($p < 0.05$), it means that the added variables have improved the model's ability to explain or predict consumer behavior. Simply put, it answers the question: "Do the independent variables help in explaining why people take part in take-back programs by brands?" If the test is not significant ($p > 0.05$), then it suggests that the variables may not be useful predictors in that hypothesis (Nayebi, 2020).

Model Summary: The Nagelkerke R^2 ranges from 0 to 1. A value closer to 1 indicates a better fit and a value near 0 implies less variability to the dependent variable. It shows how much of the change in dependent variable can be explained with the help of selected independent variables (Nagelkerke, et al., 2005).

Hosmer and Lemeshow Test: This test is also called goodness of fit test, where the value is interpreted with p-value. A good model is indicated by a high p-value, if the p-value is less than 0.05 then the model does not adequately fit the data (Harrison, et al., 2020).

Variable in equation: This is where the result shows how each variable affects the likelihood of participation. The Exp(B) value tells how much the odds of participating change for each category of a variable. If Exp(B) is more than 1, it increases the chance of participating and if Exp(B) is less than 1, it decreases the chance (Tukur & Usman, 2016).

4.3.1 Hypothesis summary

Hypothesis Statement	**Significance**	**Support Status**
H1: Knowledge of the environmental impacts of textile recycling, positively influences consumers participation in clothing take-back programs.	Omnibus Test p = 0.061	✗ Rejected
H2: The perceived convenience of recycling programs positively influences consumers participation in clothing take-back initiatives.	Omnibus Test p = 0.200	✗ Rejected
H3: Distrust in the sustainability claims made by brands, negatively influences consumers participation in clothing take-back initiatives.	Omnibus Test p = 0.369	✗ Rejected
H4: Social norms, such as peer influence, positively affect consumers participation in clothing take-back programs.	Omnibus Test p = 0.004	☑ Accepted
H5: Inconsistent sustainability messaging negatively affects participation in clothing take-back initiatives.	Omnibus Test p = 0.123	✗ Rejected
H6: Perceived incentives (economic and environmental) positively influence consumers participation in clothing take-back programs.	Omnibus Test p = 0.005	☑ Accepted

Table 5: Hypothesis summary

4.3.2 Hypothesis 1:

Knowledge of the environmental impacts of textile recycling, positively influences consumers participation in clothing take-back programs. To test this hypothesis, the following null and alternative hypotheses were proposed.

Hypothesis 0: Knowledge of the environmental impacts of textile recycling does not significantly influence consumers participation in clothing take-back programs.

Hypothesis A: Knowledge of the environmental impacts of textile recycling, positively influences consumers participation in clothing take-back programs.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	9.000	4	.061
	Block	9.000	4	.061
	Model	9.000	4	.061

Table 6: H1: Omnibus test

The logistic regression model revealed there is no significant relationship as the ($p > 0.05$). The omnibus test of model coefficients showing a p-value of 0.061, even though suggesting borderline model significance.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	138.029[a]	.063	.096

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 7:H1: Model summary

The Nagelkerke R^2 was 0.096, indicating that the model explains 9.6% of variation in consumer participation behavior can be explained by their knowledge of the environmental consequences.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.411	4	.842

Table 8: H1: Hosmer and Lemeshow test

Hosmer and Lemeshow test yielded a value of 0.842, suggesting a good model fit, which implies a good model fit, as the observed data do not significantly differ from the predicted values.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Env_knowledge1			4.766	2	.092	
	Env_knowledge1(1)	2.341	1.087	4.635	1	.031	10.393
	Env_knowledge1(2)	2.223	1.055	4.439	1	.035	9.238
	Env_Knowledge2			.007	2	.997	
	Env_Knowledge2(1)	-.044	.577	.006	1	.939	.957
	Env_Knowledge2(2)	.012	.721	.000	1	.987	1.012
	Constant	-3.248	1.027	10.013	1	.002	.039

a. Variable(s) entered on step 1: Env_knowledge1, Env_Knowledge2.

Table 9: H1: Variables in the equation

Additionally, analysis of the variables in the equation table indicated that: Env_Knowledge1 (how knowledgeable consumers are of recycling) was statistically significant. Both knowledge categories under this variable showed positive regression coefficients. Env_Knowledge1(1): B = 2.341, p = 0.031, Odds Ratio (Exp(B)) = 10.393 and Env_Knowledge1(2): B = 2.223, p = 0.035, Odds Ratio (Exp(B)) = 9.238. This suggests that participants with higher environmental knowledge were 9–10 times more likely to engage in clothing recycling than those with lower knowledge. In contrast, Env_Knowledge2 (related to process-level knowledge) was not statistically significant, with p-values of 0.939 and 0.987 respectively, suggesting it had minimal influence on clothing recycling participation. However, the overall model (logistic regression model) with both variables together did not achieve statistical significance and based on that result, we fail to reject the null hypothesis. Suggesting that knowledge of environmental and social impacts does not have a statistically significant influence on participation behavior in this sample.

4.3.3 Hypothesis 2:

The perceived convenience of recycling programs positively influences consumers participation in clothing take-back initiatives. To test this hypothesis, the following null and alternative hypotheses were proposed.

Hypothesis 0: The perceived convenience of recycling programs does not significantly influence consumers participation in clothing take-back initiatives.

Hypothesis A: The perceived convenience of recycling programs positively influences consumers participation in clothing take-back initiatives.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3.218	2	.200
	Block	3.218	2	.200
	Model	3.218	2	.200

The logistic regression model revealed there is no significant relationship as the ($p > 0.05$). The omnibus test of model coefficients: $p = 0.200$, indicating that the model was not statistically significant.

Table 10: H2: Omnibus Test

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	143.811[a]	.023	.035

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Nagelkerke $R^2 = 0.035$, meaning the model explains only 3.5% of variation, in consumer participation behavior can be explained by their perceived convenience.

Table 11: H2: Model summary

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	1	1.000

Hosmer and Lemeshow test: $p = 1.000$, which suggests a very good model fit, although the lack of model significance (as shown above) limits its interpretive strength.

Table 12: H2: Hosmer and Lemeshow test

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Convenience			2.849	2	.241	
	Convenience(1)	.818	.592	1.910	1	.167	2.267
	Convenience(2)	.936	.567	2.729	1	.099	2.550
	Constant	-1.917	.479	16.017	1	<.001	.147

a. Variable(s) entered on step 1: Convenience.

Table 13: H2: Variables in the equation

The variables in the equation table showed that, participants who disagreed that recycling is convenient (convenience = 1), the odds of participation increased by 2.26 times (Exp(B) = 2.26) and for those who agreed recycling is convenient (convenience = 2), the odds increased by 2.55 times (Exp(B) = 2.55). However, despite these odds ratios indicating a positive relationship, the p-values were not statistically significant, which means the effect could have occurred by chance. Although participants who perceived

recycling as more convenient were more likely to engage in take-back programs, the overall model did not achieve statistical significance. Therefore, we fail to reject the null hypothesis and further research with a larger or more diverse sample may be needed to clarify this relationship.

4.3.4 Hypothesis 3:

Distrust in the sustainability claims made by brands, negatively influences consumers participation in clothing take-back initiatives. The independent variables were two Likert scale items capturing: "Brand trust" (how much consumers trust sustainability claims made by brands) and "Perceived greenwashing" or distrust in brand claims. To test this hypothesis, the following null and alternative hypotheses were proposed.

Hypothesis 0: Distrust in the sustainability claims made by brands, has no significant influence on consumers participation in clothing take-back initiatives.

Hypothesis A: Distrust in the sustainability claims made by brands, negatively influences consumers participation in clothing take-back initiatives.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.284	4	.369
	Block	4.284	4	.369
	Model	4.284	4	.369

Table 14:H3: Omnibus test

The logistic regression model revealed there is no significant relationship as the ($p > 0.05$). The omnibus test of model coefficients showed a p- value of 0.369, indicating the overall model was not statistically significant.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	142.745[a]	.031	.047

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 15:H3: Model Summary

Nagelkerke $R^2 = 0.047$, which means the model explains approximately only 4.7% variation, in consumer participation behavior in relation to the sustainability claim by the brands.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.370	5	.498

Table 16: H3: Hosmer and Lemeshow test

Hosmer and Lemeshow test showed a P value of 0.498, suggesting that the model fit the data well, even though there is no significant relationship.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Brandtrust			2.481	2	.289	
	Brandtrust(1)	-.049	.686	.005	1	.943	.952
	Brandtrust(2)	.736	.694	1.126	1	.289	2.088
	Brand_claim			.110	2	.947	
	Brand_claim(1)	.063	.607	.011	1	.917	1.065
	Brand_claim(2)	.203	.672	.091	1	.763	1.225
	Constant	-1.655	.454	13.304	1	<.001	.191

a. Variable(s) entered on step 1: Brandtrust, Brand_claim.

Table 17:H3: Variables in the equation

Variables in the equation table showed that participants with "neutral trust" had slightly lower odds of participating in clothing recycling than those with "low trust" (Exp(B) = 0.952), although this result was not statistically significant. Conversely, participants with "high trust" in the brand were 2.088 times more likely to participate in clothing recycling compared to those with "low trust". Indicating a positive association between brand trust and recycling participation. However, the statistical significance of this effect needs to be confirmed with the corresponding p-value. Accordingly, participants who were neutral about trusting brands' sustainability claims had an Exp(B) of 1.06. Indicating they were approximately equally likely to participate compared to those who disagreed and participants who agreed with the trust and brand claims. Participants who agreed on trust and brand claims had an Exp(B) of 1.22. Suggesting that they were 1.2 times more likely to participate in brand-led take-back programs compared to those who disagreed. However, the overall model (logistic regression model) with both variables together did not achieve statistical significance and therefore, we fail to reject the null hypothesis.

4.3.5 Hypothesis 4:

Social norms, such as peer influence, positively affect consumers participation in clothing take-back programs: The independent variables included two Likert scale items measuring: Peer influence (e.g., if friends/family often discuss sustainability) and peer motivation (e.g., if seeing others recycle motivates personal action). To test this, we propose the following null and alternative hypothesis:

Hypothesis 0: Social norms, such as peer influence, does not significantly affect consumers participation in clothing take-back programs:

Hypothesis A: Social norms, such as peer influence, positively affect consumers participation in clothing take-back programs:

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.656	4	.004
	Block	15.656	4	.004
	Model	15.656	4	.004

Omnibus test of model coefficients showed the P value of 0.004, indicating that the model is statistically significant, and the included predictors contribute meaningfully to explaining participation.

Table 18:H4: Omnibus test

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	131.373[a]	.107	.164

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Nagelkerke R^2 = 0.164, indicating that about 16.4% of the variance in participation is explained by the social norm variables.

Table 19:H4: Model Summary

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.795	5	.877

Hosmer and Lemeshow test, showed p value of 0.877, suggesting the model fit the data well.

Table 20: H4: Hosmer and Lemeshow test

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Peer_Influence			14.240	2	<.001	
	Peer_Influence(1)	1.396	.510	7.482	1	.006	4.038
	Peer_Influence(2)	1.989	.568	12.263	1	<.001	7.312
	Peer_Motivation			.031	2	.984	
	Peer_Motivation(1)	-.097	.622	.024	1	.877	.908
	Peer_Motivation(2)	-.099	.594	.028	1	.868	.906
	Constant	-2.005	.545	13.527	1	<.001	.135

a. Variable(s) entered on step 1: Peer_Influence, Peer_Motivation.

Table 21:H4: Variables in the equation

Variables in the equation showed: Peer Influence: Exp(B) = 4.03 and 7.31 for levels 1 and 2 respectively, indicating that participants who report greater peer influence are 4 to 7 times more likely to engage in clothing recycling. Peer Motivation: Exp(B) = 0.908 and 0.906, suggesting a non-significant effect of this variable, as these odds ratios are close to 1. So, the analysis supports hypothesis 4 and, in this case, we reject the null hypothesis. Social influence, particularly actual visibility of sustainable behaviors (my friends and

family partake in take-back programs), significantly influences participation in clothing recycling. However, perception on peer motivation alone (I get influenced to recycle by seeing others recycle) did not show a statistically strong influence on participation, even though it aligns directionally with the hypothesis. This suggests that active peer behavior may have more influence than passive observation in motivating recycling behavior.

4.3.6 Hypothesis 5:

Inconsistent sustainability messaging negatively impacts consumer participation in clothing take-back initiatives. To test this hypothesis, the following null and alternative hypotheses were proposed.

Hypothesis 0: Inconsistent sustainability messaging does not significantly impact consumer participation in clothing take-back initiatives.

Hypothesis A: Inconsistent sustainability messaging negatively impacts consumer participation in clothing take-back initiatives.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	4.197	2	.123
	Block	4.197	2	.123
	Model	4.197	2	.123

The logistic regression model revealed there is no significant relationship as the ($p > 0.05$). Omnibus test of model coefficients showed value of $p = 0.123$, indicating that the model is not statistically significant at the 0.05 level. This suggests the predictor variable does not significantly improve the model.

Table 22: H5: Omnibus test

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	142.832[a]	.030	.046

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Nagelkerke $R^2 = 0.046$, indicating that the model explains only about 4.6% of the variance in participation can be explained by inconsistent messaging variables.

Table 23: H5: Model Summary

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.000	1	1.000

Hosmer and Lemeshow test: $p = 1.000$, showing a very good model fit (as the test indicates no significant difference between observed and predicted values).

Table 24: H5: Hosmer and Lemeshow test

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Inconsistent_messages			3.418	2	.181	
	Inconsistent_messages(1)	1.671	1.075	2.417	1	.120	5.318
	Inconsistent_messages(2)	1.138	1.086	1.097	1	.295	3.120
	Constant	-2.565	1.038	6.109	1	.013	.077

a. Variable(s) entered on step 1: Inconsistent_messages.

Table 25:H5: Variables in the equation

Exp(B) = 5.31 (for level 1) and 3.12 (for level 2), which indicates that respondents who perceive inconsistent messaging may be 3 to 5 times more likely to participate — contrary to the expected negative effect. So, while the odds ratios suggest an increased likelihood of participation among those perceiving inconsistent messaging, the model lacks statistical significance ($p > 0.05$) as p-value is 0.123. Thus, we fail to reject the null hypothesis. The unexpected direction of the odds ratios could indicate confusion among consumers or other unaccounted factors influencing behavior. Further investigation may be needed to explore the complex role of trust and communication clarity in shaping participation in recycling initiatives.

4.3.7 Hypothesis 6:

Perceived incentives—economic and environmental positively influence consumers participation in clothing take-back programs. For testing the hypothesis, we propose the below null and alternate hypothesis.

Hypothesis 0: Perceived incentives—economic and environmental does not significantly influence participation in clothing take-back programs.

Hypothesis A: Perceived incentives—economic and environmental positively influence participation in clothing take-back programs.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	14.871	4	.005
	Block	14.871	4	.005
	Model	14.871	4	.005

Table 26:H6: Omnibus test

Omnibus test of model coefficients showed a good relationship with perceived benefit, as P value is 0.005 — indicates that the model is statistically significant and that the predictors collectively improve the model fit compared to the null model.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	132.158[a]	.102	.156

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Nagelkerke R^2 showed a value of 0.156 explaining the model has 15.6% of the variance in participation in take-back programs can be explained by incentives.

Table 27: H6: Model Summary

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.291	4	.682

Hosmer and Lemeshow test showed a p value of 0.682, indicating a good model fit as there is no significant difference between observed and predicted values.

Table 28:H6: Hosmer and Lemeshow test

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Financial_Incentive			4.513	2	.105	
	Financial_Incentive(1)	2.298	1.095	4.405	1	.036	9.952
	Financial_Incentive(2)	2.154	1.057	4.151	1	.042	8.619
	Environmental_Incentive			.959	2	.619	
	Environmental_Incentive(1)	19.331	11580.961	.000	1	.999	248450978.33
	Environmental_Incentive(2)	19.886	11580.961	.000	1	.999	432947644.45
	Constant	-22.878	11580.961	.000	1	.998	.000

a. Variable(s) entered on step 1: Financial_Incentive, Environmental_Incentive.

Table 29:H6: Variables in the equation

The variables in the equation table showed financial incentives with Exp(B) 9.95 and 8.61 for levels 1 and 2, indicating a very strong positive association between perceived financial rewards and participation. Additionally, environmental incentives with Exp(B) showed extremely high values (248 million and 432 million), likely indicating a computational or scaling issue in SPSS, often caused by sparse data or multicollinearity. This may be due to the small sample size of 'disagree' respondents. While these results suggest a positive relationship, the magnitude is likely inflated or unreliable and should be interpreted with caution. However, the overall model show significance, thus we reject the null hypothesis.

4.4 Descriptive Statistics

The descriptive findings of the survey are consolidated in table 30,31 and one which is in Appendix 3 table 38. The case study findings are consolidated in table 32,33.

Gender:
29,2% Men
70,8% Women
Awareness of Clothing Take-Back Programs
63,9% Aware of such programs
36,1% Not aware

Table 30*: Descriptive statistics 1*

Controlled questions	Factors	Yes, regularly	Yes, but less	No, never
Recycling habits: participating in take-back program		7.6%	14.6%	77.8%
Motivational factors for participating in take-back programs	Easier access -	54.5%	66.7%	67.9%
	Financial incentives	27.3%	61.9%	37.5%
	Environmental incentives	90.9%	28.6%	30.4%
	Clothes will be properly recycled/trust	9.1%	38.1%	32.1%
	More information and education on the environmental impact textile has	0.0%	33.3%	15.2%
	Peer/community influence	0.0%	9.5%	9.8%
Perceived Inconvenience in Take-Back programs	Limited drop-off locations	63.6%	61.9%	47.3%
	Lack of information on how to participate	18.2%	52.4%	58.9%
	Inconvenient opening hours	54.5%	19 %	15.2%
	Time-consuming process	0.0%	14.3%	25.0%
	No immediate reward, there's little incentive	0.0%	23.8%	14.3%
	Unclear instructions — The process isn't easy to follow	0.0%	28.6%	13.4%
Barriers for participating	Lack of awareness and knowledge about the take-back programs	18.2%	42.9%	58.9%
	Lack of interest	0.0%	4.8%	16.1%
	Lack of trust in brands	0.0%	18.8%	16.1%
	Financial incentives	0.0%	23.8%	8.9%

	Brands do not collaborate with non-profit org	0.0%	33.3%	11.6%
	Inconvenience	0.0%	14.3%	29.5%
	None of my peers or friends participate in these programs	0.0%	9.5%	8.9%
	Even if I recycle, it won't matter to the environment	0.0%	4.8%	1.8%
Factors increasing trust in take-back programs	Clearer information about the recycling process	54.5%	66.7%	53.6%
	Independent third-party verification	36.4%	47.6%	38.4%
	Transparency about where clothes go after collection	54.5%	47.6%	63.4%
	Brands reducing overall clothing production	9.1%	33.3%	17.9%
Suggestion to increase participation	Increase convenience –	90.1%	95.3%	99.1%
	Raise awareness –	54.5%	38.1%	43.8%
	Provide better incentives –	36.4%	57.1%	39.3%
	Enhance transparency –	27.3%	38.1%	35.7%
	Involve the community –	36.4%	23.8%	16.1%

Table 31: Controlled question findings

4.4.1 Case Study

Both Zara and H&M are leading fast fashion brands in Europe and among the largest contributors to textile waste (Statista, 2025). Taking some responsibility, both companies have implemented take-back programs for several years as part of their circularity and sustainability initiatives (Zara, 2025; H&M, 2025).

The tables below provide an overview of their respective take-back programs and how these are communicated to consumers across different platforms.

4.4.2 Zara and H&M's Take-Back Initiatives

Aspect	Zara	H&M
Take-Back Program (Zara, 2025) and (H&M, 2025)	Store Collection Bins for recycling.	Instore collection bins for recycling.
Home Pick-Up / Mail-In for Returns	Available in select countries, not Sweden. Customers must visit stores.	Not available. Customers must visit stores.
Consumer Incentives	No direct financial incentive for donations.	50 SEK voucher & 200 membership points for each bag of clothing donated.

Donation to Non-Profits	Partners with NGOs to donate clothes to people in need or sell for charitable causes.	No direct donation to charities. Clothes are resold, reused, or recycled.
Recycling Process	Collaborates with charities and professional recycling partners to handle end-of-life garments.	Works with business partners to recycle fabrics into new materials (e.g., cleaning cloths, insulation).
Number of Charitable Organizations Supported	More than 90 non-profits collaborate with Zara's donation program.	Not specified – H&M does not mention partnerships with charities.
Sorting & Processing	Donations are categorized for reuse, charitable sales, textile repurposing, recycling, or responsible disposal.	Items are resold on Pre-Loved, repurposed into new products, or recycled into textile fibers.
Resale Platforms	Zara Pre-Owned platform (allows customers to resell, donate, and repair items—available in select markets but not Sweden).	H&M Pre-Loved platforms (company only sells second-hand H&M items—no customer resale option).
Total Textiles Collected (2023)	20,259 tons	16,855 tons

Table 32: H&M and Zara take-back initiatives

4.4.3 Zara and H&M´s Take-back Program Communication (2025)

Brand	Website Navigation	Clarity of Take-Back Program Info	Details on Collected Clothes & Partnerships	Social Media Communication (content published up until May 2025)
Zara (Sweden)	Quite complex to navigate, info is scattered across different pages (Zara, 2025). Requires prior knowledge to locate info.	Have general and limited details. lack clear instruction on how to participate, some info is found on FAQs. Not all stores have return bins, must be searched manually.	There are numbers on collected clothes but not on how much of that is reused, recycled, or discarded. Info on Non-profit orgs and local charities is there	Limited posts on circular initiatives, donations etc. Out of 123 posts made only 2 are related to their circular initiatives (Zara Instagram, 2025).

Zara (UK)	Easy to navigate; info is accessible and clearly visible (Zara UK, 2025)	Clear instructions on how to return clothes and participate.	Info provided about what happens post-collection. Lacks numbers, percentages.	Limited circularity post and social media communication (Zara Instagram, 2025).
H&M (Sweden)	Complex to navigate. Info is scattered across three different pages (H&M, 2025). Requires prior knowledge to locate info.	Basic instructions exist but not properly communicated on main pages. All stores have return bins.	Some percentages are shared, but transparency on discarded clothes and how they are processed could be added.	No posts on circular initiatives (H&M Instagram, 2025)

Table 33: H&M and Zara take-back program communication

5. Discussion

This section presents a discussion of the study's findings with comparison to previous research. It includes whether the hypotheses are supported or rejected, the different hypothesis statement responses with a discussion on consumer barriers, motivations, and suggestions for participating in clothing take-back programs. The section also critically assesses current initiatives by firms such as Zara and H&M, identifying gaps in the clothing take-back programs. Based on both consumer input and case study findings as presented in chapter four (including tables in the appendix), practical solutions are proposed to enhance participation and improve the effectiveness of circular initiatives in the fashion industry.

5.1 Overall view

The survey results clearly shows that there is low awareness and participation in clothing take-back programs. Over one-third of respondents are unaware of such initiatives. More notably, 77.8% of the respondents reported never having used a clothing take-back program, with only 14.6% doing so occasionally and just 7.6% regularly. These findings are in line with Hvass & Pedersen's (2019) study, who also found low awareness and participation rates in clothing take-back initiatives in Sweden, despite increased efforts by firms to involve consumers in such programs. This low participation suggests that barriers continue to hinder behavioral engagement, particularly among the two largest groups: occasional and non-participants. Encouraging these two groups (occasional and non-participants) to engage more regularly in take-back programs involves understanding these barriers. But also, to identify motivational factors, and addressing suggestions, provided by consumers to improve existing firms' initiatives.

Interestingly, the study identified a gap between consumer attitudes and actual behaviors across most variables. Many respondents for example expressed environmental concern and found take-back programs convenient, yet they had never participated. This aligns with research by White et al. (2019), who argued that although consumers often express positive pro-environmental attitudes, they frequently fail to act on them. Ajzen's (1991) TPB framework further explains this by noting that while attitudes, perceived behavioral control, and norms influence behavioral intention, external constraints (like convenience and access) can prevent actual action. Meaning that there could currently be gaps or constraints in take-back systems offered by brands that discourages participation. It could also suggest that other factors may be more critical deterrents, Ajzen (1991) explains that some factors may be stronger than others depending on the context. Suggesting that influencing factors in isolations may not be decisive in driving participation.

Although four out of six hypotheses, including convenience, distrust, inconsistent sustainability messaging, and environmental knowledge—were rejected, the TPB by Ajzen (1991) remains a valuable theoretical model. It offered a structured framework to explore how different factors might influence behavior. Like studies done by Rosenthal (2018) and Abila & Kantola (2019) this research measured attitudes to actual behavior. Which produced different results, than previous studies like Seo & Jin (2024), that measured attitude variables to recycling intentions or willingness to participate. Although

intention and behavior often share similar characteristics (Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021) the outcome in this study shows that the results can differ significantly. The mentioned outcome being the low participation levels on clothing take-back programs which likely limited the statistical significance rather than undermining the TPB model itself.

In addition, the qualitative responses revealed barriers such as low awareness, confusion about logistics, and limited brand communication. Which relate directly to subjective norms and perceived behavioral control—key elements of the TPB (Ajzen, 1991). Thus, while the hypothesis testing showed no significance across most variables, the TPB helped to contextualize the findings and interpret the gap between attitude and action. In the following section the study dives deeper into the discussions on each hypothesis testing and is examined with the qualitative findings. With particular focus on why certain variables did not impact consumer clothing recycling behavior.

5.2 Environmental knowledge

Hypothesis testing on environmental knowledge showed no significant relationship between the variable and participation. The findings are contrasting with the view of Xiao, et al., (2025) who found that knowledge about recycling positively influence recycling behavior. The qualitative insights and descriptive statistics indicate a reason to why the hypothesis testing showed no significance. One reason could be that many of the respondents were neutral to the statement. Indicating uncertainty and giving some mixed responses, which has the possibility to weaken the overall impact of the variable, when measured statistically (Field, 2013). Another reason could be that the biggest group non-participants, despite reporting general awareness of textile recycling and its environmental benefits, showed no engagement with clothing take-back programs. Implying like Ajzen (1991) suggested, the possibility that the attitude on environmental knowledge alone is not a predictor of action in this context. A third reason could be like Ajzen's (1991) also suggest that perceived behavioral control such as external constraints can be at play. Either way the findings are in alignment with Mariani´s (2016) research that suggests that even with strong environmental consciousness, consumer behavior in the context of textile recycling remains inconsistent. Demonstrating the challenge of aligning awareness with active engagement.

5.2.1 Consumer barriers, motivations and suggestions

In some follow up questions, the occasional and non-participants expressed the need for education and clearer information from brands. Specifically, about the collected clothes and the environmental benefits of recycling. This was stated by the group despite responding that they have general environmental knowledge. The responses align with findings from Shao & Lassleben (2021), who emphasized that environmental attitudes will positively influence consumers' willingness to engage in brand-led clothing recycling programs. And with Jena & Sarmah (2015) who emphasized the importance of education in fostering a sense of responsibility. The need for education and clearer information got strengthened even more when, one of the strongest consumer suggestions for increasing participation was raise awareness. The suggestion received significant

support, from all groups. Revealing that knowledge about environmental and social impacts of clothing recycling, to be an important factor for increasing participation. At first glance it seems like that the factor environmental knowledge alone is not a psychological impactful driver for consumer to participate. But consumer suggestions for improvement is also pointing to a possible external restraint in brands current clothing take-back programs, which can discourage participation according to Ajzen (1991). In some open-ended answers it was revealed that this was the case for some participants, leaving commenting such as “I don’t believe that they recycle clothes. Don't they just burn them?” And “The process is not clear for the customer - are these clothes really recycled? What we know at this point, it is not”. The findings are highlighting an external constrain, on how brands are communicating about their take-back programs, and the environmental impact clothing recycling has. Consumer may have general environmental knowledge about textile, but not enough knowledge on brands clothing take-back programs and its environmental impact.

5.2.2 Firms’ initiative

Case analysis of H&M and Zara shows that both brands have made efforts to inform consumers about sustainability-related information on their websites (e.g., H&M’s *Looop Machine* and Zara’s *Join Life* initiative) (H&M, 2025; Zara, 2025). However, the clarity and accessibility of this information remain weak. On both brands’ websites and Instagram pages (Zara Instagram, 2025; H&M Instagram, 2025), information on clothing take-back initiatives and circular efforts is buried or scattered and lacking visibility. Further, there seem to be a lack of quantifiable data on Zaras websites such as how many clothes are reused, recycled, or incinerated (Zara, 2025). On H&M websites there is also limited detail about the recycling process or the final destination of collected clothes that can’t be reused (H&M, 2025). Vague or inaccessible sustainability related information may foster skepticism and reduce the perceived impact of consumer participation (Costantini & Costantini, 2022).

5.2.3 Solution to increase participation

Brands should provide clear, accessible data on what happens to collected clothes—specifying how much is reused, recycled, or discarded. Clearly show how much clothes waste has been diverted from landfills and how it was processed. They should consider, educational campaigns across multiple channels. Run awareness campaigns not just on their websites but via social media, in-store signage, and partnerships with influencers or sustainability advocates to make environmental impacts more visible and engaging Use plain language and videos to explain where the clothes go, clearly state what percentages is recycled, and the environmental benefits. Educational content should be strategized and tailored for less engaged consumers, showing how small actions contribute to big impacts. Brands could also incorporate behavioral nudges such as rewards or recognition for sustainable actions.

5.3 Convenience

Hypothesis testing revealed no statistically significant relationship between perceived convenience and actual participation in clothing take-back programs. Although many respondents recognized convenience as an important factor and agreed that these programs are relatively convenient, this perception did not consistently translate into behavior. This reveals as mentioned before a disconnect between what consumers say and what they do as mentioned by White, et al., (2019). Who argue that stated attitudes do not always predict sustainable behaviors due to other overriding barriers or motivations. The qualitative insights and descriptive findings indicate a reason to why the hypothesis testing showed no significance.

5.3.1 Consumer barriers, motivations and suggestions

So, to further investigate, the survey included follow-up questions asking what specific aspects of take-back programs participants found inconvenient. All 138 respondents chose to answer this question, even some participants who had previously not rated the programs as inconvenient. Suggesting widespread awareness and concern around the issue of convenience. Leaving comments such as “These stores are situated quite far away from my home” and “They have a standard for the clothes they take in and when I throw away my used clothes, they are in such a shape that they will not be accepted”. This indicates that, despite the appearance of general satisfaction in initial responses, a deeper sense of low awareness and inconvenience in take-back programs exists across the sample. Across all behavior groups, the most frequently mentioned barriers to convenience included, limited drop-off locations, lack of information on how to participate and inconvenient store opening hours. These practical barriers help explain why statistical analysis did not find a strong relationship between perceived convenience and participation. While consumers may conceptually agree that clothing recycling programs are convenient, their real-world experiences tell a different story. As Seo & Jin (2024) also observed, even minor logistical obstacles can discourage sustainable clothing recycling behaviors and lead to improper garment discarding.

Interestingly, when analyzing motivational factors, "easier access" emerged as the most motivational driver for participation across all three groups. This suggests convenience is a critical enabler. As Seo & Jin (2024) further emphasize, consumers are more likely to return used garments when logistical ease is ensured (e.g., through home pick-up or widely available drop-off points). When participants were asked for suggestions on how to improve participation in take-back programs, respondents from all groups overwhelmingly supported raising awareness by improving communication about the program — what it involves, how to participate, and improving convenience. Specifically recommending, more drop-off locations, home pick-up services and mail-in alternatives. The different response is indicating that the reason for the attitude-behavior gap in the question of convenience is external constraints in the current take-back programs offered by brands. This will according to Ajzen (1991) negatively affect the attitude, which could lead to not following through with the behavior.

5.3.2 Firms' initiatives

Currently, the two example firms, Zara and H&M does not offer flexible solutions, such as home pick-up services and mail-in alternatives in Sweden (Zara, 2025; H&M, 2025). Both brands do however collect all types of clothes no matter the quality of the disposed items. Though the clothing recycling programs require consumers to physically bring clothing to in-store bins — which are only accessible during store hours. H&M have collecting bins in every store, Zara does not have bins for clothing recycling in every store. For consumers to find stores which have bins they need to visit their website and search for it manually. Zaras PRE-OWNED platform where consumer themselves can resell or buy old clothing is not offered yet in Sweden. These limitations reduce accessibility and undermines the perceived convenience of the program (White, et al., 2019).

Another factor is access to information which is an integral part of convenience (Seo & Jin, 2024). When consumers cannot easily find or understand instructions for participation, they are less likely to engage (Costantini & Costantini, 2022). H&M has three different pages for their clothing take-back program each are not easy to find, the same goes for Zara. As of now, Zara's and H&M's (Zara, 2025; H&M, 2025) Swedish websites offer limited, unclear, or scattered/hard-to-find information about the conditions and how and where to participate in take-back programs. In contrast, Zara's UK site presents a more structured and clearer guide to its donation initiative (Zara UK, 2025).

5.3.3 Solution to increase participation

To increase participation firms should introduce more flexible drop-off options such as outdoor collection bins accessible 24/7 and home pick-up or mail-in alternatives. These options would remove the limitation of store opening hours and make participation more accessible for a broader range of consumers.

Clearly display take-back program information, the conditions and how to participate both online (e.g., visible on the homepage and relevant product pages) and in-store (e.g., through signage and clear instructions near collection bins). Websites should be user-friendly, and information should be easy to access and collected on one main page. This helps eliminate confusion and raises awareness.

5.4 Greenwashing

Hypothesis testing revealed no statistically significant relationship between perceived distrust and participation in brand-led clothing take-back programs. Interestingly, among the biggest group non-participants, the majority expressed a degree of trust in brands, yet this trust alone did not translate into active participation. Among occasional and regular participants, a substantial portion expressed distrust, suggesting that distrust is not necessarily a barrier to participation for those already engaged in the programs. This finding shows a clear disconnect between attitudes and behaviors (White, et al., 2019) and contrast with prior research (e.g., Szabo & Webster, 2020; Xiao et al., 2022) that positions trust as a central barrier to sustainable behavior. Although that's the case our results align more with previous research done by Riva, et al., (2024), where the concept

of trust and green brand association is showing to be a more complex phenomenon. The study by Riva, et al., (2024) expected that skeptical consumers would be less trusting, even if they had a good impression of the brand. But it turns out skepticism did not strongly weaken the relationship between green brand association and trust. Which means that skepticism is not always a barrier to behavior. Some consumers may still participate in sustainable actions like take-back programs even if they don't fully trust the brand. The qualitative insights and descriptive findings indicate a reason to why the hypothesis testing showed no significance. One reason could be that many of the respondents were neutral to the statement. Indicating uncertainty and giving some mixed responses, which has the possibility to weaken the overall impact of the variable, when measured statistically (Field, 2013). Another reason could be what Ajzen (1991) and Riva, et al., (2024) suggested, the possibility that the attitude on trust alone is not a predictor of action in this context. Maybe convenience, personal values (e.g., not wasting clothes), or external motivations like store discounts are a bigger motivation.

5.4.1 Consumer barriers, motivations and suggestions

Although trust alone did not significantly impact the participation in take-back programs, respondents still showed it to be an important factor for them. Many of the respondents showed neutral stance on the matter, these would most definitely have given a clearer picture if taken a stance. A closer look at the other findings, nuances the view. In a follow-up question, all 138 respondents answered if they perceived brands as untrustworthy, how brands could improve trust. This overwhelming response signals that brand trustworthiness is a concern. Suggesting that increasing transparency with clarity in the recycling process is a sufficient motivator for them. Clearer information on the recycling process and where clothes go after collection showed to be key trust-builders across all groups. These findings resonate with prior literature highlighting consumer demand for transparency as a mechanism for overcoming greenwashing and increasing brand legitimacy (e.g., Szabo & Webster, 2020). And, with the findings we had from environmental knowledge; that information on the environmental impact of take-back programs and collected clothes will increase participation. Independent third-party verification also showed strong support between all three groups. This is consistent with Riva, et al., (2024), who argue that sustained brand trust in sustainability contexts increasingly depends on external, verifiable proof of environmental claims, rather than internal branding alone.

5.4.2 Firms' initiative

Currently both Zara and H&M have made visible efforts to promote their clothing take-back programs through initiatives like Zara's *Join Life* platform and H&M's *Looop Machine* and *Looper Textile Co* (Zara, 2025; H&M, 2025). While H&M has begun to present some quantified data on their website—e.g., the share of garments reused or recycled (H&M, 2025) clarity and accessibility remain limited across both brands websites. For Zara specifically while garments are sorted into donation, reuse or recycle (Zara, 2025), they lack some specific detailed, quantifiable data (e.g., percentages, destinations, or outcomes). The current information provided on both Zara and H&M

Swedish websites remains vague and difficult to find/navigate (Zara, 2025; H&M, 2025). H&M has three different pages for their take-back program, each are not easy to find. There is also limited detail about the recycling process or the final destination of collected clothes that can't be reused. Zara is very clearly working with non-profit organizations, but this information is buried in subpages. As of now both Zara and H&M are not communicating clearly about their clothing take-back programs and their recycling process. As previously noted, vague or inaccessible sustainability information may foster skepticism and reduce the perceived impact of consumer participation (Costantini & Costantini, 2022).

5.4.3 Solution to increase participation

Brands should provide clear, accessible data on what happens to collected clothes—specifying how much is reused, recycled, or discarded. Transparency about non-recyclable items and disposal methods is key, answering questions such as if the items are disposed of in environmentally sound ways (e.g., through certified waste management facilities).

They should collaborate with independent third-party audits like non-profit orgs and update information clearly and regularly through various channels, newsletters, website, social media, or in-store displays.

Websites should be user-friendly, using plain language/visuals and information should be easy to find/access and collected on one main page. This one page could be dedicated to take-back programs and include everything mentioned above.

5.5 Peer influence

Hypothesis testing showed a significant relationship between peer influence and behavior. Here the perception of peer influence is in line with the respondent's clothing recycling behavior. Majority of those that participates regularly, showed that they were influenced by their peers (friend and family participating in recycling clothing on take-back programs) and it impacts their clothing recycling behavior positively. The consumer responses are just in line with Berglund, et al., (2022) and Olsson (2018) who suggested that in Sweden, peer influence plays a crucial role in promoting recycling. Although non-participants also showed alignment, they did so in the opposite direction, which means that they don't have family and friends in their surroundings that participate in take-back programs and therefore has no influence on their participation in take-back programs. The hypothesis testing is showing significance because what the respondents are saying and doing is in line. This result is supported with findings from White, et al., (2019) who also suggested peer influence as an impacting factor in recycling. In accordance with Ajzen's (1991) TPB, social norm is a factor that alone has a significant impact on behavior.

5.5.1 Consumer barriers, motivations and suggestions

A closer look at the result discloses that seeing active peer engagement—rather than just awareness of others behavior—is more effective in influencing clothing recycling behavior. The biggest group non-participants say they would recycle if they saw others

doing so, but in reality, most do not observe peers recycling clothes in take-back programs. This suggests low social visibility. In follow-up questions, all respondents suggested that, to increase participation, brands should involve the community more. By organizing events or forming partnerships to make recycling clothes a shared experience.

5.5.2 Firms' initiative

A review of Zara and H&Ms Instagram pages, covering content published up until May 2025 shows that currently both has minimal, or no posts related to recycling clothes or take-back programs (Zara Instagram, 2025; H&M Instagram, 2025). Websites also lack enough marketing videos or campaigns on participating in clothing recycling programs. Zara has one video on their website showing random consumers returning clothes to their take-back program, H&M has no such video (H&M, 2025; Zara, 2025).

5.5.3 Solution to increase participation

Since peer influence is a significant influencing factor, there's potential to leverage social proof through campaigns that highlight peer participation and normalize clothing recycling behaviors. Brands should, to further encourage consumers to participate, consider investing in campaigns that show consumers, groups and communities recycling clothes and working together to better the environment. Use multiple channels but especially social media to create trends/hashtags and make recycling clothes more visible and shareable.

5.6 Inconsistent sustainability messaging

Hypothesis testing showed no significant relationship between perceived inconsistent sustainability messaging and participation. A closer look at the results, reveals that the groups show some mixed responses. Among regular participants in take-back programs, a majority (72.7%) responded neutrally, while 18.2% agreed or strongly agreed that brands sustainability messaging is inconsistent (for details on responses see Appendix 3, table 38). Interestingly, despite recognizing some inconsistency, these consumers continue to recycle clothes regularly. This suggests that inconsistent sustainability messaging does not deter this group from participating. For occasional participants, the responses were more divided, while 47.6% were neutral, a notable 47.6% agreed or strongly agreed with the statement. This group appears more aware of mixed messages but continues to participate in take-back programs, albeit less frequently indicating the possibility that while brand messaging may play a role, it is not a decisive factor. This contradicts the assumption by Xu & Han (2021) that inconsistent messaging is a major barrier, for regular and occasional participants. In the non-participating group, 45.5% agreed or strongly agreed with perceived inconsistent sustainability messaging, while only (11,6%) strongly disagreed or disagreed and (42.9%) remained neutral. This finding actually shows significance and does not illustrate a clear example of the attitude–behavior-gap suggested by White, et al., (2019).

The reason for statistical analysis not showing significance in this case, could be the neutral positions which are large among the respondents. Meaning that majority of the

respondents don't actually have a stance in the matter. Uncertainty or indifference can weaken the overall impact of the variable when measured statistically (Field, 2013). With the respondent's neutral attitude, the test can't reliably predict the outcome. It could also suggest that other factors may be more critical deterrents, that the attitude on inconsistent sustainability messaging alone is not a predictor of action in this context Ajzen (1991).

Since the inconsistent sustainability messaging is very clearly not showing to be a significant influencing factor for participation, both in the hypothesis testing and in the qualitative findings. Also because of the high numbers of neutral stances, which gives skewed data, further investigation on this subject is not considered. Though deeper insight into the subject for future research could be considered, where a bigger sample and a qualitative approach to understanding the phenomena more closely would be appropriate.

5.7 Incentives

Hypothesis testing revealed that together environmental and financial incentives show a statistically significant relationship with consumer participation in clothing take-back programs. This aligns with existing research by Seo & Jin (2024), which highlights incentives as important motivational factors for consumers in take-back program. In accordance with Ajzen's (1991) TPB, incentives is a factor that alone has a significant impact on behavior. However, in a follow up question, it shows that the type and perceived value of the incentives appear to influence participation differently across consumer groups.

5.7.1 Consumer barriers, motivations and suggestions

Environmental incentives show slightly stronger motivation for those that participate on a regular basis, and financial incentives are showing more importance for those that occasionally participate. Both environmental incentives and financial incentives were motivational factors for non-participants. According to similar research done by Seo & Jin (2024), it was noted that preferred perceived incentives varied between consumers. Though, across all groups it was strongly suggested that better incentives, like discounts or rewards, would increase participation. It was also stated that financial incentives need to be of good value, that too low incentives will not motivate them, which has also been confirmed by Liu, et al., (2024). Understanding the role of economic incentives and environmental incentives is essential for identifying differences in participation motivations and for developing targeted strategies to promote take-back programs effectively (Seo & Jin, 2024).

5.7.2 Firms' initiative

Currently H&M provides financial incentives (a 50 SEK discount voucher or 200 member points, per bag of returned clothes) but lacks a donation-based alternative. Instead, the collected clothes go to reselling on their preloved platform, reused into new items or recycled (H&M, 2025). Zara, in contrast gives environmental incentives by partnering with local non-profit organizations and with charities (where collected items are donated),

they get no profit on this. They do not offer any financial reward for participation though (Zara, 2025).

5.7.3 Solution to increase participation

Brands that only offer financial incentives can, in addition to the voucher/discount, offer environmental incentives. Such as allowing customers to donate to a non-profit organization or contribute to local sustainability initiatives. This could appeal to environmentally motivated consumers and provide more perceived value.
Brands that only offer environmental incentives can introduce a financial incentive. Such as a discount or voucher system—to attract occasional or less environmentally driven consumers who are more responsive to tangible benefits. Further they should investigate what financial value consumers perceive as sufficient.

6.Conclusion

This final section, connects and concludes the entirety of the research. It revisits the objective of the study and the research questions that guided the investigation. It presents the key findings in response to those questions. The section also outlines practical implications for both brand managers and policymakers, followed by some of the study's limitations and lastly suggestions for future research.

6.1 Objective and research question

Considering the increasing focus on textile recycling and the broader shift toward circular economy practices—driven by recent policy developments such as new regulations on textile waste and growing corporate commitments—this study aimed to investigate consumer perspectives on these changes. Understanding consumer recycling behavior is essential for the successful implementation of circular initiatives, particularly in the fast fashion sector, where take-back programs have been implemented as key strategies. Despite their growing presence, these programs continue to experience low levels of consumer participation, revealing a gap that warrants deeper exploration. To address this, the study was guided by two central research questions:

1. What factors influence consumer participation in fast fashion brands clothing take-back initiatives?
2. How can consumer participation in clothing take-back initiatives be effectively increased?

6.1.1 Answer to the research questions

The empirical findings of this study confirm that consumer clothing recycling behavior is a complex phenomenon influenced by a combination of factors. Some of these factors impacted the participation behavior directly and some did not. Among those that impacted behavior directly are, financial incentives, environmental incentives and peer influence. These emerged as the most significant motivators impacting participation in clothing take-back programs. Though convenience did not show in the hypothesis testing to be a significant factor, it revealed in a deeper analysis to be an important factor that strongly impacts behavior. Therefore, concluding that this also is one of the influencing factors, but needs more data in the hypothesis testing, to prove the matter.

While inconsistent sustainability messaging, environmental knowledge, and distrust in brands were not found to independently impact consumer participation in clothing take-back programs. Their importance should not be discounted for. Consumers still expressed that these factors strongly influenced their intention and willingness to recycle clothing. In the descriptive statistics it showed for example, in the case of environmental knowledge and trust, that participants who demonstrated higher environmental awareness and trust in brands were more likely to consider participation. Although these factors alone did not directly lead to action/participation in take-back programs, they appeared to support and strengthen clothing recycling behavior.

The findings revealed that to increase consumer participation, fast fashion brands must align take-back initiatives with what truly matters to their customers. Programs should be co-created with consumers in mind, incorporating feedback and behavioral insights into their design and execution. The strongest suggestions to increase participation from all respondents, by order are, make the programs more convenient, raise awareness, provide better incentives, increase transparency and social proof /community engagement. It was revealed that for firms to increase participation key strategies should include, increasing convenience with accessible collection methods by offering 24/7 outdoor bins, mail-in and pickup options. Raise awareness with clear communication across digital and physical touchpoints using plain language and visuals (educational campaigns, videos) to explain clothing take-back programs, the logistics of how to participate and environmental benefits. Also, on what happens to the collected clothes, by giving numbers and explaining waste management processes. Investigate what level of financial incentives are sufficient and offer diversified incentives, combining both financial (e.g., discounts, vouchers) and environmental rewards (e.g., donations to green causes) tailored to different consumer motivations. And lastly, showcase peer participation on websites and social media, to normalize clothing recycling behaviors.

6.2 Managerial and Policy Implications

The findings of this research do not only contribute to the academic literature on circular economy and consumer behavior but also provides practical advice for firms. The mentioned solutions to increase participation can be applied to firms in similar context. Understanding how to strategize differently when considering sustainability initiatives that are consumer-brand collaborations. It can act as a guide when implementing take-back programs or change current ones.

The findings can also support policy makers in understanding how to encourage the society to recycle textile. It gives practical advice on how to overcome some of the barriers people experience when recycling textile. One key takeaway for policymakers in Sweden from this research is the importance of raising public awareness and education when implementing new regulations. Particularly those that affect how consumers are expected to sort, prepare, and discard clothing for textile recycling. As our findings suggest, practical knowledge about the logistics of recycling (e.g., where and how to dispose of garments) can significantly influence participation. Ensuring that citizens are well-informed can help reduce confusion and promote correct recycling behavior.

6.3 Limitations and Future Research

This study is geographically limited to Sweden and focuses exclusively on the fast fashion sector, excluding luxury, sustainable, or second-hand brands.
Cultural and market-specific behaviors may differ in other countries, so findings should be interpreted within the Swedish context.
The research was conducted within a limited time frame, which restricted the study from exploring deeper behavioral psychology factors that influence participation in clothing recycling programs. Approaches such as in-depth interviews or longitudinal studies

capable of capturing changes in consumer behavior over time were therefore beyond the scope of this study.
Our findings also discovered, different consumer groups (e.g., regular recyclers, occasional participants, and non-participants) very clearly displaying varying preferences and motivators. This study did not because of the time limit exclusively focus on discovered differences but looked mostly at shared patterns.
Additionally, certain segments of the sample were relatively small, which may have in some cases skewed the result and affected the generalizability.

Future research could expand this study in several ways. Comparative studies across countries and markets could offer insights into cultural differences in clothing recycling behavior, while industry-specific research could build on the literature from a sectoral perspective.
Moreover, qualitative studies exploring the psychological and emotional barriers to participation could add depth to the topic.
It could delve deeper into different consumer segments (with bigger sample size) and how motivations shift over time. As well as how brands can offer tailored strategies that align with consumers' varying levels of clothing recycling maturity. Longitudinal studies would be especially valuable in understanding how motivations evolve from first-time to regular participation.
Further investigation into which types and levels of incentives are most effective, possibly through consumer-led evaluations, could also provide actionable guidance.
While this study sheds light on key behavioral drivers and how to effectively increase participation in Sweden's fast fashion take-back programs, continued research is needed to build a more holistic and globally relevant understanding of clothing recycling participation.

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Appendixes

Appendix 1: Data Cleaning table and associated tables

Original	Data cleaning
Removal of Incomplete Responses	A total of 142 individuals participated in the survey. However, responses from 4 participants were excluded due to location criteria and incomplete information, resulting in a final sample size of 138.
Numerical Coding	Further to test the hypothesis the data gathered from the survey is numerically coded and cleaned to prepare them for testing. All categorical variables were converted into numerical codes to meet the requirements of SPSS for statistical testing.
Merging Dependent Variable Categories	The dependent variable, consumer participation in textile recycling program was originally measured across three response categories. To address the issue of zero or low frequency in certain groups and to align with the binary requirements of logistic regression analysis, the responses were merged into two categories: 'Yes' (indicating participation) and 'No' (indicating non-participation). This binary coding helped ensure sufficient data distribution across groups for valid statistical testing in SPSS.
Recoding of Likert Scale Items:	The independent variables used for hypothesis testing were originally measured on a 5-point Likert scale (ranging from 'Strongly Disagree' to 'Strongly Agree'). To address issues of

	zero or low response frequency in certain categories and to simplify the analysis, the scale was recoded into a 3-point scale: 'Disagree' (combining 'Strongly Disagree' and 'Disagree'), 'Neutral', and 'Agree' (combining 'Agree' and 'Strongly Agree'). This transformation was done to ensure adequate representation in each response category and enhance the robustness of the statistical tests."
Exclusion of Control Variables for Inferential Testing	Control variables (e.g., demographic or contextual factors) were removed from the hypothesis testing dataset but retained for descriptive analysis. These variables were utilized to provide contextual insights into participation trends and to explore potential reasons behind low engagement or the lack of significance in certain hypotheses.

Table 34: Data cleaning details

DV	Response options	Original response	Change	code
Takeback participation	No, I have never	107	107	0
Takeback participation	Yes, But less	21	21	1
Takeback participation	Yes, I do regularly	10	10	1

Table 35: Merging Dependent variable

Appendix 2: Cronbach's Alpha and Common Method Bias

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
B_Participation	17.30	12.167	.279	.697
Convenience	15.41	9.790	.525	.647
Financial_Incentive	15.16	10.923	.307	.694
Environmental_Incentive	14.88	11.359	.332	.687
Env_knowledge1	15.17	11.395	.213	.712
Brandtrust	15.37	9.534	.584	.633
Brand_claim	15.65	9.761	.570	.638
Peer_Influence	15.96	10.874	.352	.684
Peer_Motivation	15.28	11.212	.263	.702

Table 36: Cronbach alpha total

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.741	27.409	27.409	2.741	27.409	27.409
2	1.242	12.418	39.827	1.242	12.418	39.827
3	1.214	12.142	51.969	1.214	12.142	51.969
4	1.107	11.075	63.044	1.107	11.075	63.044
5	.804	8.038	71.082			
6	.749	7.486	78.567			
7	.692	6.922	85.489			
8	.626	6.258	91.747			
9	.466	4.657	96.404			
10	.360	3.596	100.000			

Extraction Method: Principal Component Analysis.

Table 37: Common method bias table

Appendix 3: Descriptive Statistics

Statement/Groups responses	Likert scale	Yes, regularly	Yes, but less	No, I have never
"I find take-back programs convenient for recycling clothes"	Strongly Disagree	0.0%	4.8%	9.8%
	Disagree	0.0%	19.0%	22.3%
	Neutral	45.4%	28.6%	31.3%
	Agree	27.3%	33.3%	20.5%
	Strongly Agree	27.3%	14.3%	16.1%
"I get motivated by financial incentives (discounts, vouchers)"	Strongly Disagree	0.0%	4.8%	8.9%
	Disagree	0.0%	0.0%	14.3%
	Neutral	27.3%	33.3%	21.4%
	Agree	27.3%	38.1%	27.7%

	Strongly Agree	45.4%	23.8%	27.7%
"I get motivated by environmental incentives (donation, waste reduction)"	Strongly Disagree	0.0%	0.0%	1.8%
	Disagree	0.0%	0.0%	8.9%
	Neutral	18.2%	14.3%	21.4%
	Agree	45.4%	52.4%	31.3%
	Strongly Agree	36.4%	33.3%	36.6%
"I am knowledgeable about textile recycling and its environmental benefits"	Strongly Disagree	0.0%	0.0%	8.0%
	Disagree	0.0%	4.8%	17.0%
	Neutral	36.4%	33.3%	23.2%
	Agree	45.5%	38.1%	33.0%
	Strongly Agree	18.2%	23.8%	18.8%
"It’s not my responsibility to recycle clothing sustainably"	Strongly Disagree	63.6%	38.1%	54.4%
	Disagree	9.1%	38.1%	21.4%
	Neutral	9.1%	19.0%	17.0%
	Agree	18.2%	4.8%	4.5%
	Strongly Agree	0.0%	0.0%	2.7%
"I believe brands' take-back programs genuinely contribute to sustainability"	Strongly Disagree	0.0%	19.0%	11.6%
	Disagree	0.0%	9.5%	17.9%
	Neutral	27.3%	19.0%	34.8%
	Agree	36.3%	43.0%	25.0%
	Strongly Agree	36.4%	9.5%	10.7%
"I trust fast fashion brands’ claims about sustainability and take back programs"	Strongly Disagree	9.1%	23.8%	14.3%
	Disagree	0.0%	14.3%	27.7%
	Neutral	45.4%	33.3%	36.6%
	Agree	27.3%	23.8%	12.5%
	Strongly Agree	18.2%	4.8%	8.9%
"I get mixed messages from brands (promoting sustainability while pushing trends)"	Strongly Disagree	9.1%	4.8%	1.8%
	Disagree	0.0%	0.0%	9.8%
	Neutral	72.7%	47.6%	42.9%
	Agree	9.1%	28.6%	23.2%
	Strongly Agree	9.1%	19.0%	22.3%
"My friends or family members often engage in clothing take-back programs"	Strongly Disagree	0.0%	14.3%	37.5%
	Disagree	9.1%	23.8%	30.4%
	Neutral	54.5%	28.5%	21.4%
	Agree	18.2%	28.6%	7.1%
	Strongly Agree	18.2%	4.8%	3.6%
"I am more likely to recycle clothes if I see others in my social circle doing so"	Strongly Disagree	18.2%	4.8%	10.7%
	Disagree	18.2%	9.5%	9.8%
	Neutral	27.2%	38.1%	35.7%
	Agree	36.4%	33.3%	31.3%
	Strongly Agree	0.0%	14.3%	12.5%

*Table 38: **Descriptive statistics 2***

Appendix 4: Survey questions

Understanding Consumer Challenges for Participating in Take-Back Programs on Textile Recycling

Introduction and declaration

Many fast fashion brands such as Zara and H&M have introduced garment take-back programs, where customers can return their used clothing (for recycling or reuse) to their stores. These programs aim to reduce textile waste and promote sustainability.

We are conducting this study to better understand consumer perceptions of these programs and the challenges people face when participating in brand-led take-back initiatives.

Your responses are **completely anonymous** and will be used solely for academic research. The survey will take approximately **5–10 minutes** to complete.

Please answer as honestly and thoughtfully as possible—your insights are **invaluable** to our research.

🌿 **Let's get started!** 🌿

1. *What is your age group?*
    a. *Below 18*
    b. *18-24*
    c. *25-34*
    d. *35-44*
    e. *45-54*
    f. *Above 55*
2. *What is your gender?*
    a. *Male*
    b. *Female*
    c. *Non binary/ Third gender*
3. *Do you live in Sweden?*
    a. *Yes*
    b. *No*
4. *Do you know about brand's take-back program? (where you can recycle - return/deposit/donate your old clothes to brands such as Zara and H&M)*
    a. *Yes*
    b. *No*
5. *Have you ever recycled by depositing/returning/donating your old clothes to brands (such as Zara and H&M)?*
    a. *Yes, I do regularly*

b. *Yes, But less*
c. *No, I have never*

6. *What is your motivational factor, for participating with recycling clothes to take-back programs regularly? (Select up to 2)*
    a. *I care about the environment and I believe my contribution helps*
    b. *I get a discount or voucher from the store brands.*
    c. *It is a convenient and effortless alternative to dispose old clothes.*
    d. *I trust the brand's sustainability initiative.*
    e. *I get influenced by my community(friends& family)*
    f. *I am influenced by external communication (social media, websites, News, TV)*

7. *"I find take-back programs convenient for recycling clothes (in terms of access to information, ease of use, locating store collector bins, sorting and packing the clothes etc)"*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
8. *If you found take-back programs inconvenient, what do you think makes them inconvenient? (Select up to 2)*
    a. *Limited drop-off locations — It's hard to find a nearby store to return items*
    b. *Inconvenient opening hours — The drop-off point (stores) aren't open when I'm available*
    c. *Lack of information — I'm not sure where or how to participate*
    d. *Time-consuming process — Returning items takes too much time or effort*
    e. *No immediate reward — There's little incentive or benefit for participating*
    f. *Unclear instructions — The process isn't straightforward or easy to follow*
    g. *Other*
9. *"I get motivated by financial incentives (store discount or voucher) when recycling clothes with take-back program".*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*

10. *"I get motivated by environmental incentives (donation, charity, reducing waste etc) when recycling clothes with take-back program".*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
11. *"I am knowledgeable about textile recycling and its environmental benefits"*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
12. *"Its not my responsibility to sort or dispose clothing in an environment friendly way -the authority/collector will do that"*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
13. *"I believe brands clothing take-back programs genuinely contribute to sustainability rather than just enhancing their brand image."*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
14. *"I trust fast fashion brands' claims about sustainability and take-back recycling programs."*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
15. *If you disagree what would increase your trust in these programs? (Select up to 2)*
    a. *Clearer information about the recycling process*
    b. *Independent third-party verification (an external organization reviews the recycling process to ensure that clothes are being handled sustainably)*
    c. *Transparency (clarity) about where clothes go after collection*
    d. *Brands reducing overall clothing production*
    e. *Other*

16. *"I get mixed messages from brands. They talk about clothing take-back programs (sustainability) while also pushing new collections and trends, making their commitment to sustainability unclear"*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
17. *"My friends or family members often engage in clothing take-back programs"*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
18. *"I am more likely to recycle clothes through take-back programs if I see others in my social circle doing so".*
    a. *Strongly Disagree*
    b. *Disagree*
    c. *Neutral*
    d. *Agree*
    e. *Strongly Agree*
19. *In your opinion, what could brands do to improve participation in clothing take-back programs? (Select up to 2)*
    a. *Increase convenience – Offer more drop-off locations, home pick-up services, or mail in alternative*
    b. *Provide better incentives – Offer larger discounts or rewards for participation*
    c. *Raise awareness – Improve communication about the program and its environmental impact*
    d. *Simplify the process – Make the steps clearer and faster*
    e. *Enhance transparency – Share what happens to the clothes after collection*
    f. *Involve the community – Organize events or partnerships to make it a shared experience*
    g. *Others*
20. *What hinders you from recycling clothing to take-back programs on regular basis? (Select up to 2)*
    a. *Lack of awareness and knowledge about the take-back programs*
    b. *Lack of interest*
    c. *Lack of trust in brands*
    d. *Financial incentives (discount or voucher) aren't attractive enough*
    e. *Brands do not collaborate with non-profit organizations or donate collected clothing to those in need*

f. *Inconvenience (recycling is difficult, its a complex procedures, time-consuming)*
g. *Even if I recycle, it won't matter to the environment*
h. *None of my peers or friends participate in these programs*
i. *Other*

21. *What would make you more likely to participate on a regular basis in a clothing take-back program? (Select up to 2)*
    a. *Easier access (e.g., nearby drop-off points, mail in or pick up alternative)*
    b. *Financial incentives (e.g., discounts or vouchers)*
    c. *Environmental incentives (e.g., reducing waste, donating to charities/non profit org)*
    d. *More information and education on the environmental impact textile has*
    e. *Peer/community influence (family,friends or social media trends)*
    f. *Assurance that clothes will be properly recycled*
    g. *Others*
22. *How do you currently recycle your old clothes ? (Select up to 2)*
    a. *I have donated (to second hand/Non profit organisation)*
    b. *I usually throw it in disposable waste*
    c. *I have given to family or friends*
    d. *I usually don´t recycle I keep my old clothes*
    e. *Others*