Clothing Consumption Behaviours and Perceptions Among Dalhousie Undergraduate Students: A Comparative Study of Environmental Science/Sustainability Program Students and Students in Other Programs

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Table of Contents

Key Words*: Clothing Consumption, Second-hand Clothes, Fast Fashion, Sustainable Consumption, Environmental Education, Intention-Behaviour Gap, Hierarchy of Needs, Social Identity, Low-Cost Hypothesis*

Executive Summary

Fast fashion has been a topic of large-scale scrutiny for many years. The fast fashion industry is known for its many sustainability and ethical shortcomings, being a significant source of both pre- and post-consumer pollution. Fast fashion threatens not only the environment and natural resources but also has immense and destructive impacts on developing nations which it preys upon for access to low health and safety standards and unreasonably low required wages. University students are one of the target markets for fast fashion as it provides fiscally attainable clothing which is on-trend, making it appealing to post-secondary consumers.

This research article reviews the literature surrounding the topic of fast fashion and its environmental and social effects. It addresses the results of previous studies relating to the various factors that influence clothing consumption and disposal behaviours, with a focus on how social identity, needs, and environmental considerations play a part. Our review found a significant knowledge gap associated with the overall role that university populations are responsible for, and whether there are unique factors that inform their purchasing behaviour – such as program of study. To aid in filling this gap, our research aimed to gather data regarding student clothing consumption/disposal, the influence that environmental education has on the behaviours, and how the ideologies of Dalhousie Halifax campuses undergraduate students vary. The study surveyed the undergraduate population of Dalhousie Halifax campuses to dissect the relationship between students' clothing consumption habits and perceptions based on their academic background.

The study shows that there is a notable intention-behaviour gap among students with an environmental education background, with varied ideologies identified between programs (environmental and non-environmental) but little difference in their real consumption practices. The study results provided the insight that our surveyed population had similar consumption

patterns between programs but varied significantly when assessing interest in partaking in 'clothing swaps' as a way to acquire second-hand clothing, as well as how they rated 'environmental and ethical implications' as primary influences in their purchasing behaviour. This knowledge could be used to better identify and address barriers to sustainable clothing consumption among university-aged populations and improve this where possible.

1.0 Introduction

    1.1 Background

The overconsumption of clothing and the growth of the fast fashion industry has extensive global environmental and social impacts. These environmental issues are related to water consumption, energy consumption, textile waste, and chemical use (Niinimäki et al., 2020). Social issues include the working conditions of laborers in textile manufacturing shops, and the exposure to environmental hazards experienced by those who are involved either directly or indirectly in the clothing production process (Ferrigno et al. 2017; McIlvride et al., 2017; Nguyen, 2022).

There is a multitude of factors that may help determine an individual's clothing consumption behaviour, making it difficult to determine which to target to have the most potential to create positive change. Existing research on clothing consumption behavior and patterns focuses on the role that social identity theory and hierarchal needs theory play in guiding behavior (Xiang, 2021). University students pose a unique role as fashion consumers: they are part of the fashion industry's target generation, reflect trend turnovers, represent a mix of nationalities and wealth classes, and have away-from-home wardrobes (e.g. owning less while away) (Diddi et al., 2019; Joung and Park-Poaps, 2011). Their role in fashion consumption is less researched, though the results of some existing studies align with the low-cost hypothesis and display the existence of an attitude-behaviour gap when considering actions with environmental implications (Jestratijevic & Hillery, 2022).

    1.2 Literature Review

    1.2.1 Environmental Impacts of the Fast Fashion Industry

The life cycle of many clothing articles that would be considered "fast fashion" is immense – a characteristic that is likely associated with the complex supply chain (Niinimäki et al., 2020). There is a multitude of environmental impacts associated with the fast fashion industry, which typically fall within four categories: energy consumption, water use, chemical use, and waste production (Niinimäki et al., 2020).

With freshwater scarcity becoming a global issue, it may be surprising to learn how much water the fashion industry consumes. In 2015, the fashion industry used around 79 billion cubic meters of water – much of that being affiliated with cotton cultivation, as well as printing, dyeing, and finishing (Niinimäki et al., 2020; Scott, 2020).

The carbon footprint of the energy production required for the industry is significant, with some sources stating that around 2-8% of global greenhouse gas (GHG) emissions are associated with textiles (*UN Alliance aims to put fashion on path to sustainability*, 2018). Of course, the amount of GHG emissions varies based on how the energy is being sourced, with nations using fossil fuels producing larger amounts.

Pesticides, herbicides, and other agrochemicals are often applied to cotton crops to increase crop yield. Cotton is among the world's most pesticide-intensive crops, with smaller farms using up to 60% of their annual income to purchase pesticides (Ferrigno et al. 2017). The environmental impacts of these chemicals include a decrease in soil fertility and negative implications for the biodiversity of the area (*Environmental impacts*, n.d).

To assess the textile waste involved in the fast fashion industry, Niinimäki (2020) divides it into pre-consumer textile waste – which includes waste associated with production – and post-consumer textile waste – which includes clothing that is disposed of by consumers. Given the high consumption and low retention rate associated with fast fashion clothing, in combination with the growth of the industry, it is unsurprising that both pre- and post-consumer waste are significant issues (Remy et al., 2016). Estimations on post-consumer textile waste in Canada, based on data collected in Ontario municipalities predict that approximately 12 kg of clothing waste is produced per person annually, which can entail between 50-70 garments (Weber et al., 2023).

1.2.2 Social Costs Associated with Fast Fashion

When discussing the social implications of fast fashion, many individuals immediately think of sweatshops – a location in which material goods, particularly clothing, are produced by underpaid laborers in poor conditions (Nguyen, 2022). These facilities are often located in

developing nations where intense competition within the industry makes labour cheap, and where environmental and labour laws are more relaxed (Nguyen, 2022). In addition to the inhumane conditions and human rights violations commonly observed at many of the production sites, negative health impacts are experienced by communities near polluting factories and farm workers exposed to high levels of agrochemicals must also be involved in the conversation (Ferrigno et al. 2017; McIlvride et al., 2017).

The ability of fast fashion brands to sell on-trend clothing at a low cost plays a crucial role in the success of the business, serving as an attractant for many consumers. However, the hidden cost of the apparel is not a financial cost, but a social cost that is borne by the laborers receiving little pay and working in what is often inhumane conditions (Nguyen, 2022). Over the years, many well-known fast fashion brands have faced backlash in the media following allegations that their products were made in sweatshops (McDougall, 2007; Singh-Kurtz, 2022). However, it is difficult to obtain a clear 'yes' or 'no' answer on whether a brand or company is currently producing clothing in sweatshops or facilities with similar conditions – an example of one of the many issues relating to transparency in the industry (Chan, 2022).

It has been seen that those who experience the greatest health impacts related to environmental harms are people from developing nations who – oftentimes – are already facing challenges related to their income status (Nguyen, 2022). These implications of the clothing industry often go unnoticed, with more focus on the general environmental harms and tangible impact on nature. This may be attributed to a lack of education relating to these issues, and western societies failing to acknowledge the intersecting relationship between race, gender, income, and environmental harms (Waldron, 2021).

1.2.3 The Consumer's Role in Clothing Consumption

Consumers hold an undeniable power by controlling the demand for clothing; they are responsible for acquiring, storing, using, maintaining, and discarding articles. The development and rapid popularization of the fast fashion industry is a response to fast-shifting consumer demands as apparel considered to be "on trend" constantly changes (*Clothing & fast fashion,* 2019). This alters the postproduction clothing life span as articles are used less and discarded

more often. A shift in purchasing behavior and patterns is required should we hope to transform the fashion industry into one that operates sustainably, and with consideration for the wellness of society and the environment (Lorek & Fuchs, 2013). Studies have worked to determine which factors influence consumer behavior regarding clothing consumption, and the extent to which consideration of environmental and social impacts influences purchases.

Social Identity

An article titled "Factors That Influence Consumers' Behaviors in Fashion Market" analyzes how social identity and individuals' needs are connected to consumer behavior in the fashion industry (Xiang, 2021). It discusses Maslow's Hierarchy of Needs, a motivational theory stating that people will meet their needs based on a hierarchy of values and interests (McLeod, 2022). Clothing is considered a physiological need as it is required for human survival, and so we expect bare minimum levels of consumption (and subsequently, disposal) (Xiang, 2021).

Associating oneself with various groups provides a sense of belonging and influences how one presents themselves to the world. For example, individuals may place themselves in various categories in accordance with their gender identity, occupation, ethnicity, religion, passions, age, or – potentially – academic program. This is referred to as 'Social Identity Theory', and was originally proposed by social psychologist Henri Tajfel in 1979 (McLeod, 2023). People will purchase clothing they believe with grant them a sense of belonging, increase their confidence, or provide them with a feeling of status or prestige. Xiang (2021) argues that identifying with specific social categories not only affects how one portrays themselves, but also impacts clothing purchasing behavior. One will prioritize characteristics of clothing such as durability, style, cost, and accessibility differently according to their association with various groups.

Price Motivation

Xiang (2021) states that the affordability of fast fashion provides a way for those restricted by income to purchase apparel that not only meets their physiological need, but also fulfills their desire for belonging and enables them to express themselves through their clothing.

Clothing marketed as being "eco-friendly" or "ethically produced" oftentimes has an associated price premium. Companies will often defend this higher price by advertising the apparel as not only better for the planet but also of a higher quality than other, more affordable products (Tey et al., 2018). Research related to sustainable products has displayed that people are generally more willing to pay an increased price (Crum, 2022). However, other studies with a focus on clothing consumption have found that when making actual purchases, consumers are more resistant to paying these price premiums (T.-Y. Chan & Wong, 2012; Tey et al., 2018). These findings line up with the low-cost hypothesis of environmental behaviour – a concept based on the idea that individuals with environmental concerns will take low-cost actions to reduce the inconsistency between their attitudes and behaviours but will avoid actions associated with a higher cost regardless of the increased potential to positively impact the health of the environment (Farjam et al., 2019).

The Unique Role of Postsecondary Students and Environmental Education

Correlations between higher education and unsustainable rates of consumption have been identified; numerous of the most educated nations in the world (e.g., USA) have left indelible clothing footprints (Joyner Armstrong et al., 2016). Moreover, college students are typically more fashion-oriented, purchasing more articles than other age groups (Joung & Park-Poaps, 2011). University students are typically of an age where they are 'coming into their own' and developing their "sense of belonging", making their fashion consumption choices and motivations rather unpredictable. Moreover, they consist of a diverse mix of people of different cultures and incomes, making it difficult to generalize their behaviours.

There is a lack of research assessing student consumption patterns, but one study assessing data from a large midwestern and southwestern university in the United States was able to identify numerous unsustainable behaviours amongst their undergraduate student populations (Jestratijevic & Hillery, 2022):

- o Fast-fashion brands were the most popular brands purchased.
- o On average, 14-15 first-hand items were but over 12 weeks.
- o Students are more likely to trash than donate.
- o Purchases were motivated by price, emotion, impulse, and mandates.

Additionally, student opinions on unsustainable apparel were presented (Jestratijevic & Hillery, 2022):

1. "Well, I am not going to lie. I just discovered that most of the clothes I recently purchased have not been worn at all".
2. "I do believe that in general I buy more clothing than needed; mostly because I tend to go to inexpensive stores like H&M and Zara even though I know their clothes are manufactured to last only one season".

Clothing consumption behaviours of students are also specifically unique as they can be influenced by one's field of study. A student's academic program often influences the types of people they associate with, and which groups (e.g. campus clubs/societies) they are involved in. Connections to these groups are part of one's social identity and can influence their purchasing patterns based on a desire to fit in and relate to their peers (Jestratijevic & Hillery, 2022).

Where field of study often reflects one's interests and values, there is potential for students to make more sustainable choices where their education focuses on issues related to the environment and sustainability. Universities can educate students on the implications of their consumption behaviours by offering courses focused on sustainability and environmental impacts (Jestratijevic & Hillery, 2022). However, pro-sustainability attitudes do not often translate into sustainable behaviours. This is known as the 'intention-behaviour gap' (Farjam et al., 2019).

The Intention-Behaviour Gap

The intention-behaviour gap describes actions taken by individuals that oppose or contrast with their attitudes and values. Concern for the environment, or what Farjam (2019) refers to as "environmental attitudes", does seem to have an impact on an individual's consumption behaviors. However, additional considerations often take priority in determining purchases– cost being one such factor. Given the consistent rise in tuition for universities across Canada, and the other financial limitations students face (e.g. unable to work full time due to academic commitments), it is reasonable to infer that they are generally less able to pay the price premium often associated with sustainably produced products (Government of Canada & Canada, 2022).

This relates to Maslow's Hierarchy of Needs, and the idea that people – in this case postsecondary students – will aim to meet physiological needs before needs relating to aesthetics and belonging (McLeod, 2022). Farjam (2019) found that "environmental attitudes affected behavior only in low-cost situations", a finding consistent with the low-cost hypothesis.

1.2.4 The Alternative: Sustainable Fashion

Second-hand retail stores were traditionally viewed as being used by those who, due to financial limitations, were not able to shop at stores selling new clothing (Williams & Paddock, 2011). However, in recent years, there has been a shift in the observed clientele of these stores, with many people now choosing to shop second-hand (Williams & Paddock, 2011; Yan et al., 2015). Motivations to shop second-hand are no longer exclusively price motivated and individuals may seek out these shops to acquire clothing of a certain style (eg. vintage, chic), to decrease the environmental and ethical impacts associated with their purchases, or because they get pleasure from the shopping experience (Farrant et al., 2010; Kiehn & Vojkovic, 2018; Sicurella, 2021; Yan et al., 2015). Existing social stigmas prevent some individuals from thrifting, including perceptions of contamination and fear of judgement for wearing second-hand. However, a lack of preferred styles has been identified as the main barrier, whereas "cleanliness (is) the least important consideration" (Yan et al., 2015).

Postsecondary students are one demographic that has been observed to frequent second-hand shops, with one study from a university in the United States finding that over half of participants in the study (65%) reported having previously shopped at second-hand retail stores (Yan et al., 2015). The study asked participants to declare their level of agreement on different themes that either directly or indirectly impact second-hand clothing consumption (eg. environmentalism, perceptions of contamination, price sensitivity, perception of vintage clothing: self-expression and green factor) based on a 7-point Likert scale. Observed responses were differentiated based on whether the respondent had previously shopped at second-hand stores with 'shoppers' referring to those who had, and 'non-shoppers' referring to those who hadn't.
The results between groups varied significantly for each Likert question, and the study concluded that students who shop purchase second-hand clothing might be motivated not only by economic

factors but also by social and environmental considerations (Yan et al., 2015). Shoppers were determined to be more likely to be sensitive to higher prices, be more environmentally conscious, and be more inclined to wear vintage apparel to "express a vintage look" and to be "green" (Yan et al., 2015). Interestingly, the data also supported the conclusion that variables related to environmental concerns did not seem to influence how frequently a student purchased second-hand clothing over newer options, a result that somewhat contrasts with expectations based on existing literature and may support the existence of an attitude-behaviour gap (Farjam et al., 2019; Kiehn & Vojkovic, 2018).

There is little existing literature relating to students' willingness to purchase clothing at designated second-hand stores, as well as how environmental factors influence the perceptions surrounding these stores. Many existing studies, including the one referenced above, include limitations based on the demographic of respondents with many participants identifying as female (Yan et al., 2015). Though the data displayed that environmental concern did not significantly impact the frequency an individual shopped second-hand, understanding the various factors that influence this decision can help determine which are most significant, and, in turn, inform which should be targeted to bring about the most positive change.

As discussed, eco-friendly fashion is another sustainable means of acquiring fashion. Unfortunately, these products are often priced more steeply, preventing consumers with limited finances from participating in sustainable consumption (Tey et al., 2018).

Discussions surrounding the idea of sustainable fashion are not limited to ways in which apparel can be sustainably produced and acquired, but also the alternative methods in which clothing can be discarded. There are numerous ways in which people discard their clothing, including: throwing it in the garbage, recycling, or donating it to a friend, family member, or designated second-hand store (Porter, n.d.). By recycling or donating used clothing articles, they are kept in the stream of demand and their lifespans are shortened. Such a ready supply of used products can reduce consumer demand for new goods (Yan et al., 2015).

1.3 Research Objectives

There are a multitude of factors which may help determine an individual's clothing consumption behaviour, making it difficult to determine which to target to bring about the most positive change. Existing research on clothing consumption behavior and patterns focuses on the role that social identity theory and hierarchal needs theory play in guiding behavior, and their effect is contextually-dependant. In the context of clothing consumption by post-secondary students, their role (perceptions, behaviours, etc.) is complex and less researched, though existing studies display the existence of an attitude-behaviour gap when considering acting on environmental issues.

According to publicly available enrollment data the undergraduate student population at Dalhousie was 14,644 in 2015, and in 2020 it was recorded to have risen to 15,574 (*Enrolment reports*, n.d.). As the rates of enrollment rise, so does the overall clothing consumption of students, and in turn, the social and environmental impacts associated with those levels of consumption. Through the Environmental Science program and the College of Sustainability, Dalhousie offers a multitude of courses which include a focus on issues related to the environment and sustainability (*Environmental science*, n.d.; *Environment, sustainability and society program*, n.d.) . It might be assumed that those enrolled in these programs have a greater understanding of these issues, and that they are more likely to consider the environmental implications of their decisions.

By increasing the understanding of how clothing consumption behaviors, perceptions, and influences vary between undergraduate students of environmental and non-environmental programs, we can better determine the extent in which education influences sustainable behavior, and whether an attitude-behaviour gap is present. Through this, we can provide results that have the potential to guide future endeavours related to increasing sustainable clothing consumption of undergraduate students. Given this, our study is based on the question: Is there a difference in the clothing consumption behaviours, perceptions, and influences of Dalhousie University undergraduate students in an Environmental Science or Sustainability Program compared to those who are not?

2.0 Methods

      2.1 Target Population

The original population for this study was undergraduate students at Dalhousie Universities Studley campus, with a focus on the observed differences between those whose program of study is related to the environment, and students who are in other programs.

      2.2 Data Collection

As we hoped to survey many undergraduate students in a short amount of time, we decided to create an online survey that individuals could easily access by scanning a quick response (QR) code from a poster or following a link from social media. The use of online data collection methods such as surveys has several known advantages such as reaching people in different locations and collecting information automatically and in a short period of time – thus demanding less time from the research team (Wright, 2006). The survey was assembled in Google Forms, as it had many appealing features including the ability to automatically record responses, create simple figures conveying results, and generate a Google Sheets file with all the data collected. Participation was voluntary with no compensation, and to ensure anonymity, information regarding one's identification was not collected (eg. name, student ID).

Open-ended and closed-ended questions were designed to obtain information relating to the respondent's program of study, clothing consumption behaviours, and the factors which influence their behaviours. The survey questions and the description presented to responders can be found in Appendix A. The types of questions were as follows: one open-ended, one Likert scale, two ranking, two ratings, and ten categorical.

Three different variations of posters communicating a brief study description and a QR code linked to the survey were placed in high-traffic buildings on Dalhousie University Studley campus, including the following: Killam Memorial Library, Henry Hicks Academic Building, Goldberg Computer Science Building, Kenneth C. Rowe Management Building, Sir James Dunn Building, Mona Campbell Building, Marion McCain Arts and Social Sciences Building, Life Sciences Centre, Chemistry Building, and the Wallace McCain Learning Commons. Sixty

posters were distributed between the buildings in hopes of reaching students in a variety of programs, with a higher proportion of posters being placed in areas where students in environmental programs frequent (Mona Campbell, Life Sciences Centre). A graphic with an associated link to the survey was also shared through Instagram stories of some of our personal profiles as well as the Environmental Programs Student Society (@epss) and Dalhousie Students for Ethical Fashion (@dalstudentethicalfashion) Instagram accounts. Images of the different variations of the posters and the social media graphic can be found in Appendix B1 and B2 respectively.

The data collection period lasted for ten days (March 7th-17th, 2023), over which students had the opportunity to answer our survey and for responses to accumulate.

2.3 Data Analysis

To differentiate between SUST/ENVS/EIA/ESS (environmental) and all 'other' undergraduate programs, we divided the responses using posteriori coding of the open-ended question asking about the responder's program. We identified those in environmental programs by the presence of terms or acronyms often associated such as "ENVS", "SUST", "ESS", and "EIA". During this process, we identified that – based on their program – many responders, despite answering yes to the first question, likely study at Carlton or Sexton campus. The data from these were included to increase our sample size and have our results aim to represent undergraduate students from all Dalhousie campuses in Halifax (Studley, Carlton, Sexton).

For six of the questions (#6-8, #14-16) the data obtained was used to find the percentage of participants that selected a specific response to the question. This was calculated independently for responses from those in environmental programs and those not. From there, chi-square tests for independence were performed for each category within the questions. For example, question six, which assessed how participants discard clothing, included three different rows describing different methods, and three columns relating to how applicable the method is to the individual. Three chi-square tests were completed for this question, and they tested for the presence of a significant difference in how students in the two groupings ranked each method.

There were several questions (#11-13) within the survey that were directly related to one another. The data was used to find the percentage of participants that selected a specific response to each of the questions, and these values were displayed in a flow chart.

The data from the remaining questions was analyzed by identifying the most common response observed – the mode – for students in environmental programs and those in other programs. These were then illustrated in several double bar graphs created using Microsoft Excel that displayed the data in a way that easily identified any differences between the two groups.

2.4 Limitations

The primary limitation of our study is related to sample size: for results to be significant and representative of the Dalhousie undergraduate population, 374 survey responses must be acquired. Additionally, we included students who declared a minor in environmental science or ESS as being in environmental programs. Unfortunately, enrollment regarding these programs is not available, so the number of responses we would need to obtain accurate results is likely higher. Meeting this goal requires heavy survey advertisements and adequate time for responses to accumulate; the ENVS3502 course schedule only allows for a limited data collection period. Moreover, we only have four individuals working to promote the survey and face the expense of printing our posters (0.50 CAD$ per coloured poster).

There is also concern associated with program representation. Our methods of acquiring survey responses (posters and Instagram shares) does not guarantee unbiased results. Posters may recruit disproportionate amounts of responses from different programs, as high-traffic areas may be connected to a specific program of that building. Instagram shares are only directed at students already following those accounts. Therefore, it is difficult to gather responses from students who spend less time in the buildings containing posters and those who are not on Instagram (or following those accounts). We changed our study population to include undergraduate students in all campuses in Halifax after discovering that several of the survey responders were in a program that is offered at Sexton or Carlton campus. However, because we did not advertise the survey on these campuses, there is likely less data representing these programs.

There is also the issue of encouraging students to complete the survey. Those less interested in fashion and sustainability may be less inclined to part-take, skewing results either in favour of sustainable values or in favour of enthusiastic clothing consumption. Although it only requires 5-10 mins for completion, this may be considered too long for some. The questions posed (and subsequently, the scope of our results) are restricted by the amount of time we wanted our survey to take.

3.0 Results

At the end of the data collection period, 133 Dalhousie undergraduate students participated in the survey. The goal of 374 responses needed for a representative sample within a 95% confidence interval was not met. Therefore, these results cannot be generalized to the Dalhousie undergraduate population. The respondents were distributed by program as follows: 41 from SUST/ENVS/ESS/EIA (environmental) programs (30.6% of the total), and 93 from 'other' undergraduate programs (69.4%). There were four additional responses from individuals not enrolled at Dalhousie, and these data points were not included in the analysis.

3.1 Clothing Consumption

We asked students "*how many articles do you purchase first-hand per year?*". For each group, the majority (58.5% of environmental program (EP) students and 38.7% of 'other' program (OP) students) both purchase between 1-5 articles per year (Figures 1 and 2). Comparing Figures 1 and 2, there is slightly higher skew in OP purchase behaviour, with 12.9% of these students purchasing > 20 articles per year (compared to 2.4% for EP students).
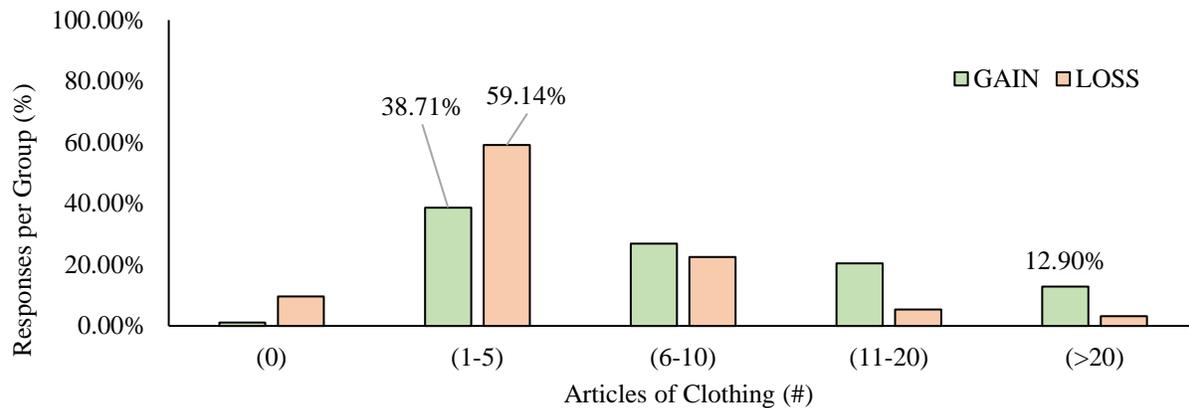
Figure 1 Frequency of responses from students <u>not in an environmental program</u> to the question "On average, how many articles of clothing do you purchase first-hand per year?" and "On average, how many first-hand articles of clothing do you get rid of per year?"
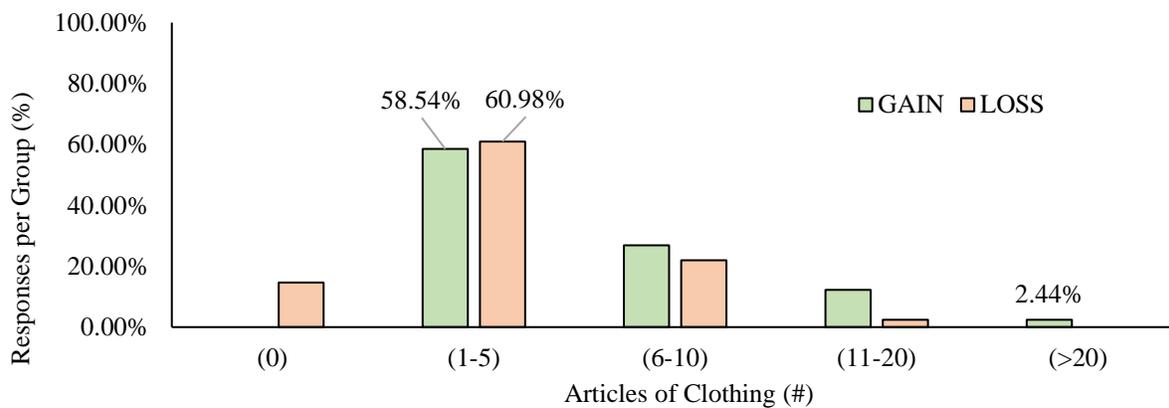

Figure 2 Frequency of responses from students <u>in an environmental program</u> to the question "On average, how many articles of clothing do you purchase first-hand per year?" and "On average, how many first-hand articles of clothing do you get rid of per year?"

3.2 Fast Fashion

The majority (82.0%, Appendix C5) of Dalhousie undergraduate students surveyed have knowingly purchased fast-fashion products. When asked if they were "aware of the environmental and ethical impacts associated…" the majority (82.6%) answered 'yes' again (Appendix C6). We asked students *"how often do you do a background check on clothing brands/companies to ensure you purchase sustainably produced clothing?"*. The majority (34.1%) of EP students 'usually' do research, whereas only 19.8% of OP students selected this response (Figure 3). Most OP students 'rarely' (30.8%) do background checks. A chi-square test

of independence did not find there to be a significant relationship between program and likelihood of conducting brand research (X^2 (4, N=133) = 4.669, p= 0.323, Appendix C10).
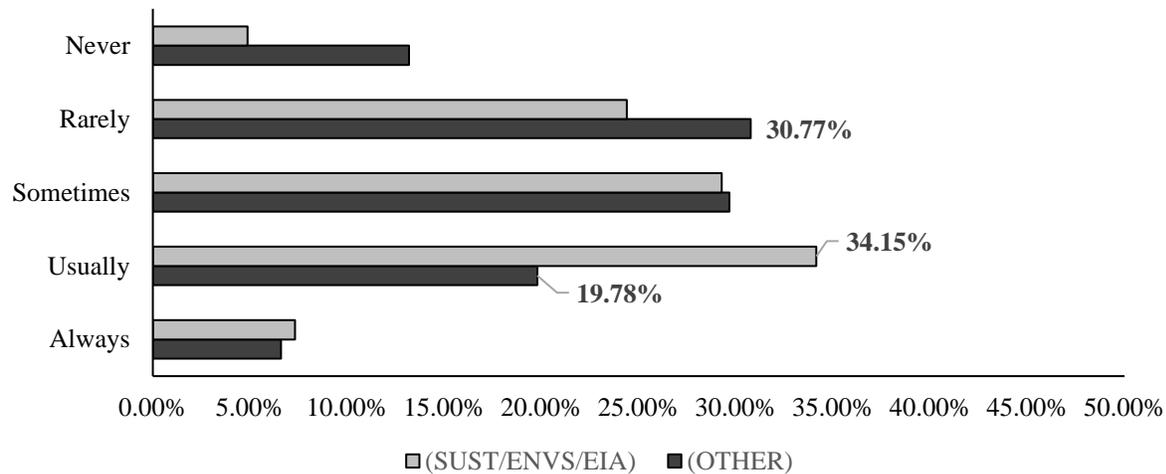
Figure 3 Frequency of responses from surveyed students in an environmental program and those not to the question "How often do you do research on clothing brands / companies to ensure you are purchasing sustainably produced clothing?"

3.3 Second-hand Clothing

The majority (92.5%) of Dalhousie undergraduate students purchase second-hand clothing (Appendix C7). Of the students who responded 'yes', 58.0% and 43.0% of EP and OP students, respectively, answered that 'most' of their clothes are second-hand (Figure 4 and 5). Of the 7.0% of EP students who responded 'no', 100.0% identified 'hygiene concerns' (Figure 4). 8.0% of OP students who responded 'no' indicated multiple reasons: the majority (42.0%) answered hygiene concerns, as well as "lack of preferred styles', 'inadequate access to second-hand stores', and 'shopping online' (Figure 5).

Figure 5 Frequency of responses from students <u>not in an environmental program</u> to questions relating to second-hand clothing consumption patterns and influences.

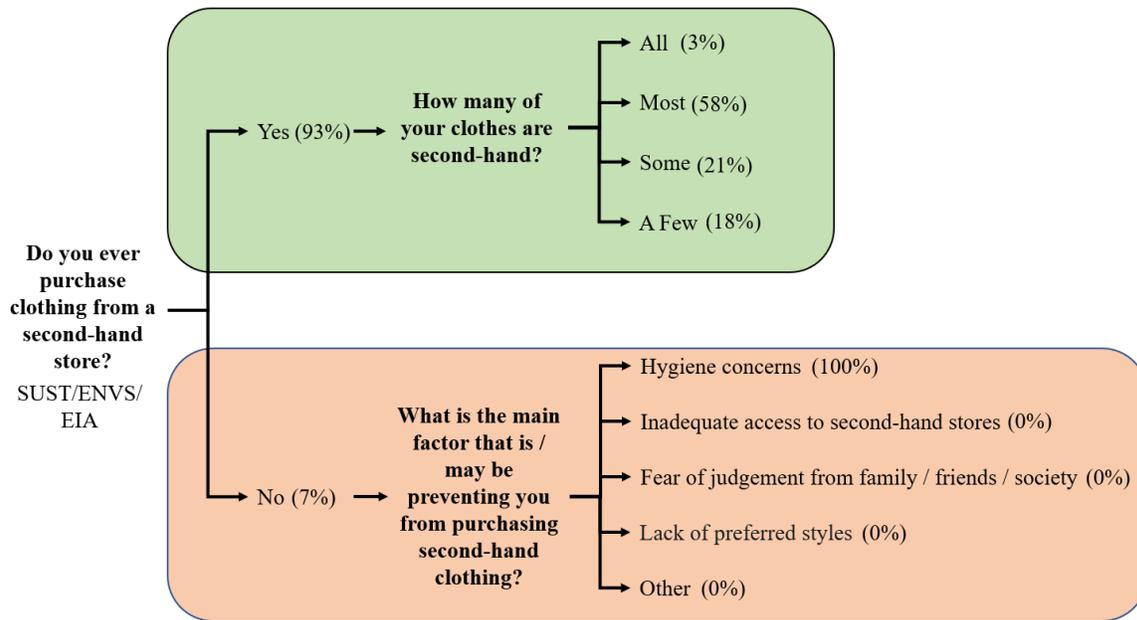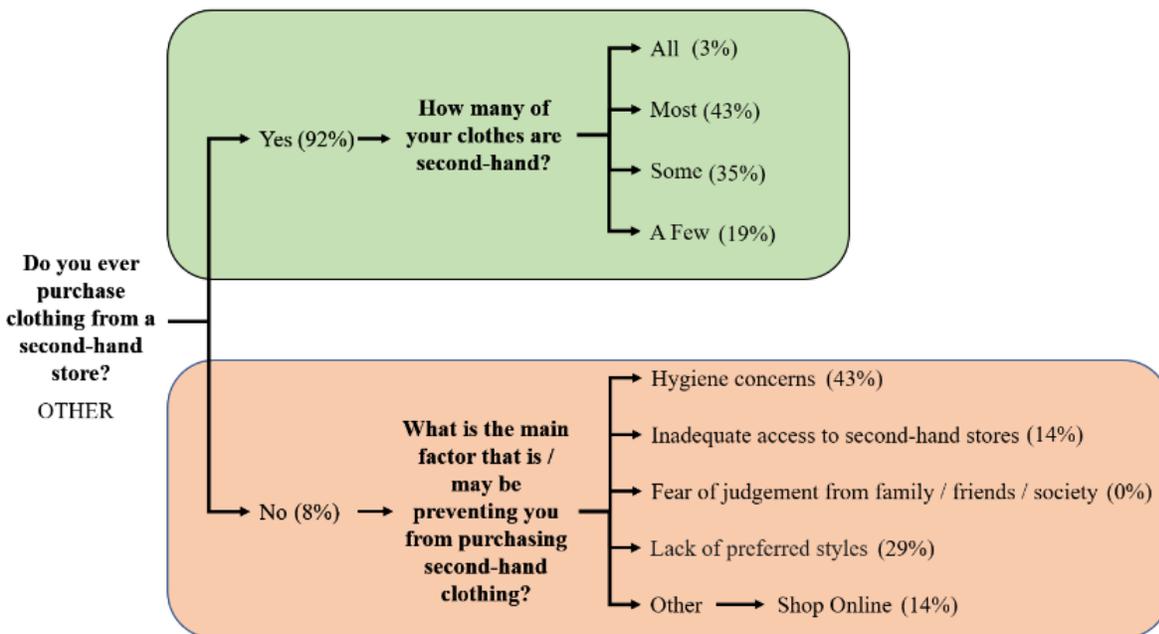*Figure 6 Frequency of responses from students <u>not in an environmental program</u> to questions relating to second-hand clothing consumption patterns and influences.*

Students were asked to rate, from a scale of 1 (most) to 5 (least), *"how interested are you in participating in each of the following methods of acquiring second-hand clothing?"*. Respondents showed the most interest in thrifting, rated 1 by 70% of EP students and 73.1% of OP students (Figure 6, Appendix C8). The interest in 'clothing swap' differed between groups (X^2 (4, N=133) = 13.369, p= 0.0096, Appendix C8), rated 1 by EP students (50.0%) and 2 by OP students (34.4%). Both groups (35.0% EP students and 28.0% OP students) rated 'clothing library' as 3 (Figure 6, Appendix C8).

Figure 6 The mode of responses to the question "How interested are you in participating in each of the following methods of acquiring second-hand clothing? Rate from 1 - 5 for each method, with 1 being most interested and 5 being least interested." Results compared for students in environmental programs (left bars) to those in other programs (right bars).

3.4 Influencing Values

We asked students to rate, from a scale of 1 (most) to 5 (least), *"how important are the following to you when shopping for clothing?"*. Both groups rated 'price', 'quality', and 'style' as 1 (Figure 7). However, EP students (51.2%) identified quality as most important whereas OP students (36.3%) identified 'price' as most important (Appendix C3). There were differences with respect to environmental/ethical considerations; 41.5% of EP students rated it 2 (compared to 17.6% of OP), while 34.07% of OP students rated it 3. A chi-square test of independence found a significant relationship between program and the respondent's value of environmental/ethical considerations (X^2 (4, N=133) = 10.5, p= 0.033, Appendix C3).
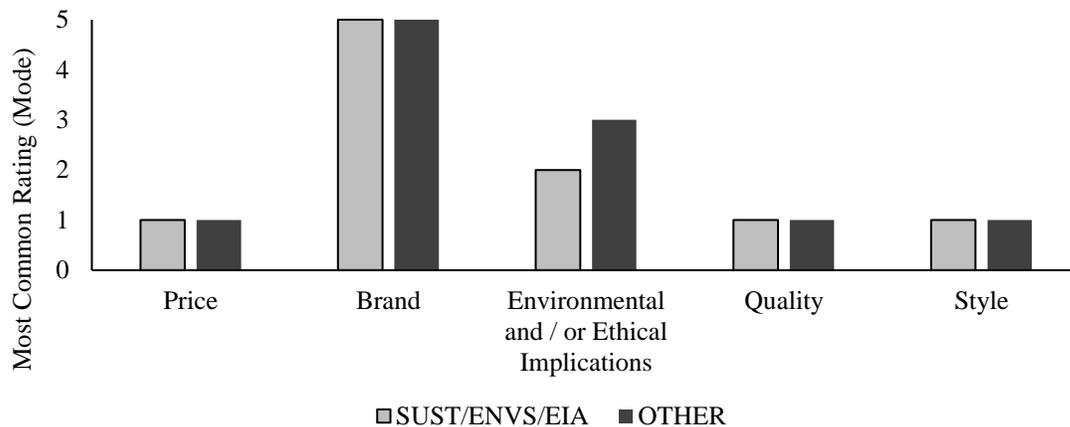
Figure 7 The mode of responses to the question "How important are the following to you when shopping for clothing? Rate from 1 - 5 for each choice, with 1 being most important and 5 being least important." Results compared for students in environmental programs (left bars) to those in other programs (right bars).

Students were *asked "indicate your degree of agreement with the following statement: environmental/ethical considerations are a factor that influences my clothing acquisition behaviours"*. 35.7% of environmental program students responded, 'strongly agree', 33.3% of other program students responded 'somewhat agree' (Figure 8). A Chi-square test of independence found no association between program and agreement with the statement ($X^2(5,$ N=133)= 8.41, p= 0.323, Appendix C9). There is also skew showing more EP responses as degree of agreement increases (Figure 8).
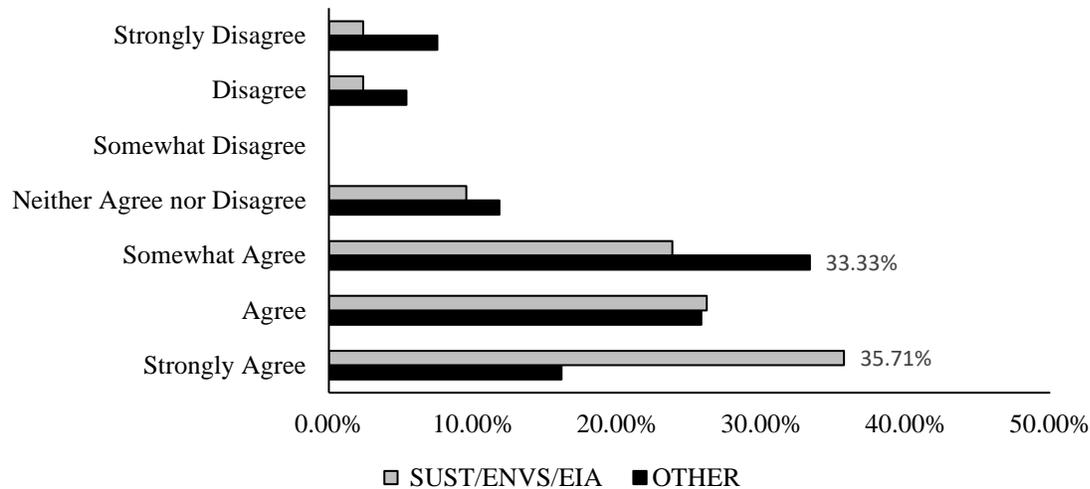
Figure 8 Frequency of responses from surveyed students in an environmental program and those not to the question "Indicate your degree of agreement with the following statement: environmental/ethical considerations are a factor that influences my clothing acquisition behaviors."

3.5 Clothing Disposal

On average, the majority of students (61.0% and 59.1% of EP students and OP students, respectively) both dispose between 1-5 articles per year (Figures 1 and 2).

Students were asked to "*number (the reasons for getting rid of clothing) from 1 to 3 in order of what most applies to you*", with 1 being most applicable and 3 being least. For EP students, 'no longer fits' was most applicable (45.0% ranked #1), followed by 'worn out' (41.5% ranked #2), and lastly 'no longer in style/aligns with preferences' (43.9% ranked #3) (Figure 9, Appendix C1). For OP students, the mode rank for both 'no longer fits' (39.8%) and 'worn out' (37.6%) was #2, while 'no longer in style/aligns with preference' was ranked #3 (46.2%). Chi-square tests of independence found no relations between program and a ranking of disposal reasons (Appendix C1).
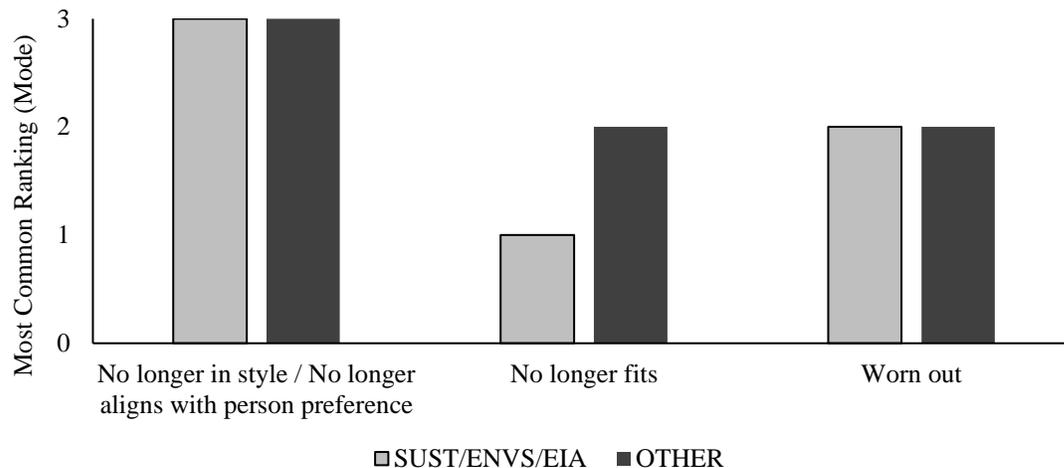
Figure 9 The mode of responses to the question "Below are some reasons for why people get rid of clothing. Number them from 1 to 3 in order of what most applies to you, with 3 being not as applicable, and 1 most applicable. "Results compared for students in environmental programs (left bars) to those in other programs (right bars).

Students were asked to rank the ways *"in which people get rid of clothing that no longer fits or that they are no longer interested in"*, with 1 being most applicable and 5 being least. The mode response categories were the same between groups: 'donate' was most appliable and ranked #1 (56.1% EP students, 53.9% OP students), 'give away…' was ranked #2 (36.6% of EP students, 35.5% OP students), '…clothing swap' and 'repurpose' were both ranked equally at #4 (29.3% EP students, 28.3% OP students), and 'garbage' was ranked #5 (68.3% EP students, 44.6% OP students) (Figure 10, Appendix C2). Chi-square tests of independence found no relations between program and method of disposal (Appendix C2).
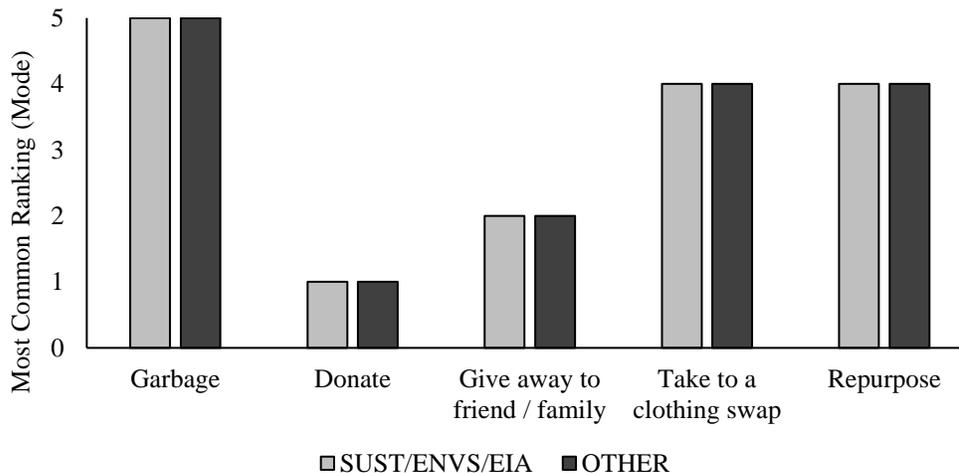
Figure 10 The mode of responses to the question "Below are some ways in which people get rid of clothing that no longer fits or that they are no longer interested in. Number them from 1 to 5 in order of what most applies to you, with 1 being most applicable, and 5 being least applicable. Results compared for students in environmental programs (left bars) to those in other programs (right bars).

4.0 Discussion

4.1 Interpretations and Implications

Context and Results Summary

The clothing industry is a threat to global sustainability and consumers play an undeniable enabling role in it. Student consumers are unique body of consumers with potential to generate harmful fashion demand (Jestratijevic & Hillery, 2022), but their exact role in fashion consumption and how university level education on its environmental impacts influences this role is under-researched. A better understanding will help identify the appropriate interventions (specifically education-wise) needed to shift students toward more sustainable mindsets and behaviours. We generalize our most significant findings as follows: Dalhousie undergraduate students exhibit numerous sustainable clothing consumption behaviours (Figures 1, 2, 4, 5) in comparison to other universities (Jestratijevic & Hillery, 2022). Style relating to social identity is not as strong a factor as predicted but is still more important than environmental harm to students (Figure 3). Both differences and similarities exist between programs; environmental values differ (Figures 3, 8, and 9) but behaviours are similar (Figures 1, 2, 4, 5, and 10), highlighting the

intention-behaviour gap in environmental program students. The extent to which sustainable values can influence actual behaviours is limited by cost (Figure 3), causing students to meet their needs through fast fashion (Appendix C6).

Sustainable Findings

Clothing consumption by Dalhousie undergraduate students is much less than the average consumer, compared to data relating to both the general public and other student populations. Where Dalhousie students on average only purchase 1-5 articles per year, studies on other consumer groups have found much higher rates of consumption. The Weber study, found that the general Ontario population buys 50-70 (2023), however did not specify if second-hand was included, (which may be inflating this number). Our survey responses indicated that "most" of Dalhousie student clothing is from second-hand sources (Figures 4 and 5), and so consumption rates may haven't been drastically higher if second-hand articles were considered in our study. Even so, comparing it to another study focused specifically on university students and firsthand articles, each student purchased an average of 14.5 first-hand items over 12 weeks (Jestratijevic and Hillery, 2022), which is already more than what Dalhousie students predict they consume annually. Therefore, Dalhousie students on average may consume less than students at other universities, but there is also a possibility that students may have underestimated their amounts in the survey. More research must be done to better understand of how Dalhousie students' consumption rates compare with other postsecondary institutions.

Encouragingly, most Dalhousie students buy second-hand, a sustainable clothing source, and their wardrobes are largely composed of these purchases (Figures 4 and 5). Thrifting was identified as the most preferred method for acquiring second-hand clothing products (Figure 6). This supports previous findings that thrifting is popular among young people aged 16-24 years (Yan et al., 2015). Yan's study suggests this may be due to matters of style choice rather than economic necessity. Our results support the idea that *both* are major drivers for thrifting, as students rated both 1, but placed higher value on price than style (appendix C3). Neither Yan's study nor our results identified the desire to consume sustainably as a major influence. We note that our survey lacked questions that directly identify student's reasons for shopping second-hand; these are just inferences made based on survey responses from Figure 3.

Dalhousie students exhibit sustainable clothing disposal behaviours, tending to donate their clothes and state that discarding clothing in the garbage is a last resort (Figure 10). This is in opposition to another study, which found that students are most likely to trash than donate, and that this disposal is driven by changing trends (Jestratijevic and Hillary, 2022). Dalhousie students are not solely discarding clothes due to trends and preferences; it is more often based on ability to fit (Figure 9). We keep in mind that just because clothes no longer in style/of preference aren't being discarded does not mean they are being worn.

Social Identity and Environmental Education

Social identity theory suggests that individual's fashion choices are driven by the desire to self-express or 'fit-in' socially, and that methods of acquiring clothing to meet these needs are influenced by the groups they associated with (McLeod, 2019). Our survey responses did not provide strong evidence that clothing acquisition is dominantly controlled by a desire to achieve a specific 'look'. Style was not identified as a barrier to second-hand (Figures 4 and 5), was rated third in importance while shopping (Figure 7) and was the least applicable reason for getting rid of clothing (Figure 9). Moreover, we failed to identify major differences regarding acquisition *behaviours* between programs. Both student groups consume equal amounts of first-hand articles, part-take in fast fashion, and buy second-hand (Figures 1 and 2, Appendix C6, and Figures 4 and 5, respectively).

We did find support of social identity (in terms of academic interests) controlling what *factors* influence consumer behaviours (Xiang, 2021). Differences in values related to clothing consumption were identified between students in environmental and 'other' programs; EP students spend more time researching the sustainability of clothing brands (Figure 3), placed a higher rating on the importance of environmental/ethical implications (Figure 7), and strongly agree that these implications control their consumption behaviours (Figure 8). These findings support the idea that environmental education encourages sustainable values in students (Farian et al., 2019). Because survey responses showed that both environmental and 'other' program students were near equally aware of the unsustainable impacts of fast fashion (Appendix C6), we question if OP students simply have less concern for the environment, or if there is an

unidentified difference in their level of understanding (compared to EP students). Fast fashion implies a multitude of environmental harms that occur at difference scales; awareness of impacts exists as a spectrum (Farian et al., 2019). A gauge of level of awareness is required to determine which is the case.

Intention-Behaviour Gap, Hierarchy of Needs, and Low-cost Hypothesis

Despite any awareness of its impacts, the majority of student, continue to consume fast-fashion (Appendix B6). This includes environmental program students, who (we assume to be) more educated on environmental issues and express more concern related to sustainability (Figures 3, 7, 8). These students may intend to consume sustainable, but their behaviours fail to reflect this. For instance, EP students 'usually' conduct brand research to avoid purchasing from unsustainable companies, however the majority have knowingly consumed fast-fashion (Appendix C6). This finding is consistent with the intention-behaviour gap, where sustainable intentions don't translate into sustainable actions (Farjam et al., 2019). This phenomenon, as it applies to clothing consumption by Dalhousie undergraduates, can explained by the Low-cost Hypothesis (Farjam et al., 2019) in combination with Maslow's Hierarchy of Needs (McLeod, 2022).

We identified behavioural patterns similar to what is suggested by the low-cost hypothesis (Farjam et al., 2019): students take low-cost actions to be sustainable, such as thrifting and researching (behaviours suited for their environmental concerns), but avoid higher cost actions such as purchasing more expensive sustainably produced products. Those with environmental concerns are typically more inclined to pay this higher price, driven to behave according to their values of 'helping the planet'. However, the demand of these goods is also positively related to income (Farian et al., 2019). University students experience financial constraints (due to tuition costs, inopportunity to work, etc.) that can have strong control over their behaviours, often making them unable/less willing to pay the price of sustainability (McLeod, 2022). While our survey lacked questions that would directly confirm this prediction, we see it reflected in how students rated price as 'most' important, while environmental concerns (as well as style) received a lower rating (Figure 3). This finding also follows Maslow's Hierarchy of Needs, which states that individuals will meet their physiological needs (bare minimum ability to afford clothes)

before considering other desires, such as style and environmental concern (McLeod, 2022). The affordability of fast fashion provides a way for those restricted by income to purchase apparel that not only meets their physiological need, but also satisfies desires to partake in fashion trends (Xiang, 2021). This, paired with the finding that style and price are of higher importance than environmental implications to students, may explain why most partake in fast-fashion consumption.

Interestingly, despite these other findings, environmental program students believed quality was the most important factor (Figure 3); fast fashion is typically poor quality due to its cheapness. We struggle to explain this finding.

4.2 Limitations

The amount of survey responses we received (133) did not meet the required sample size (343) for our results to be representative and significant. This alone invalidates our results, and we cannot general our findings to the Dalhousie undergraduate population. Even if sample size was met, we cannot guarantee representative, unbiased results as survey responses depend on which students viewed the advertisements posted online and around Studley campus for instance, a significant number of responses may be generated from DSEF's Instagram followers and from buildings experiencing higher student traffic, increasing the representation of those values and programs. Given Dalhousie's diverse student population (regarding background, income, academia, etc.) and the array of behavioural norms it entails, we must be careful generalizing results.

Chi-square tests of independence were not performed for each survey question/response theme due to time-constraints and manpower. Moreover, the test results do not tell us the nature of the relationships between survey variable and program response; we infer this by looking at the actual responses.

4.3 Suggestions for Future Research

A second study is required to obtain a sample size large enough for findings to be significant. This could be accomplished by extending the data collection period, increasing survey

advertisement (more posters, pay for online advertisement…), or offering participants compensation, to name a few.

Section 4.1 also identified numerous issues associated with the scope of certain survey questions and responses; here we offer improvements. Future surveys should ask what students do with articles no longer considered 'in-style' or of preference to better clarify if waste is associated with personal desires. We also recommend a question to help gauge the strength of a student's environmental education and awareness of fast fashion impacts, which we predict would explain the difference in environmental concern between programs. In accordance with the low-cost hypothesis, students could also be asked about their willingness/ability to purchase more expensive, sustainable products.

Statistical tests of inference should be conducted for each question (where it applies). This will either require more time/resources to perform said tests, or that future surveys be more condensed (unfortunately, limiting the scope). Survey questions displaying association between program and response variable should undergo t-tests to clarify the nature of the relationship.

5.0 Conclusion

Our question addressed unknowns relating to consumption by students and how it might differ by levels of environmental education. By answering it, we hoped to identify problem areas and recognize opportunities to shift behaviours to be more sustainable. We found that Dalhousie undergraduate students were found to be less influenced by style through social identity than anticipated and more actively participate in sustainable clothing behaviours than other universities. Behaviours are mostly consistent across all students however environmental values differ, demonstrating the intention behaviour gap among environmental students. The inaction of pro-sustainability behaviours may be attributed to cost barriers.

5.1 Recommendations for Encouraging Sustainable Consumption

Consumers hold the power to decrease clothing demand by opting for more sustainable behaviours of clothing consumption. Our study results revealed potential ways this could be encouraged.

Environmental education could help to promote sustainable concerns and values in consumers via integration into 'other' program curriculums. For example, obtaining a fashion degree could require a course on eco-friendly clothing production or the clothing industry workings. However, because differences in consumption behaviours between programs did not differ, we cannot recommend improving environmental education to encourage sustainable purchases. Instead, more focus should be put into overcoming the low-cost issue by decreasing the price of sustainably produced clothing. Companies can accomplish this by "using raw materials more efficiently, recycling, reducing packaging, and making production processes more efficient" (Meng & Leary, 2021). Imposing legal regulations on the clothing industry can push this business agenda (Peleg Mizrachi & Tal, 2022).

Although most students already purchase second-hand, hygiene concerns still pose as barriers to this sustainable consumption method. Limited peer-reviewed literature exists on the hygienic status of thrift stores/second-hand clothing; baseline research is required before suggesting a course of action.

5.2 Study Improvements

Limitations (in regard to sample size and question scope) exist that call into question the legitimacy of our results and require a re-peat study with improved survey questions (as outline in section 4.3) to adequately answer. To ensure more representative results, researchers should assess the student traffic of buildings before deciding where to advertise the survey. A longer data collection period (perhaps one month) will allow for responses to accumulate to the required sample size (343). Extended time should also be spent conducting statistical tests of inference (incorporating t-tests) on more questions/responses.

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Appendix A: Survey Description and Questions

Clothing Consumption Patterns and Behaviours of Undergraduate Students at Dalhousie University

You are invited to take part in a research study being conducted by, Robyn Hirsch, Alex Levy, Yeonhee Jang, and Hannah Freeman, students in the Department of Earth and Environmental Sciences, Dalhousie University. The purpose of this research is to investigate Dalhousie undergraduate students' current clothing consumption perceptions and behaviours, identify factors influencing these behaviours, and test for differences between students enrolled in environmental or sustainability programs versus other programs.
If you choose to participate in this research you will be asked to answer the 23 questions in an anonymous online survey on your clothing consumption behaviours and perceptions. The survey should take approximately 5-10 minutes.

Your participation in this research is entirely your choice. You do not have to answer questions that you do not want to answer (by selecting prefer not to answer), and you are welcome to stop the survey at any time if you no longer want to participate. All you need to do is close your browser. We will not include any incomplete surveys in my analyses. If you do complete your survey and you change your mind later, We will not be able to remove the information you provided as we will not know which response is yours.

Your responses to the survey will be anonymous. This means that there are no questions in the survey that ask for identifying details such as your name or email address. All responses will be saved on a secure Dalhousie server. Only Robyn Hirsch, Alex Levy, Yeonhee Jang, and Hannah Freeman will have access to the survey results.

We will describe and share general findings of this research as a presentation, research project in ENVS/SUST 3502: Environmental Problems Solving II: The Campus as a Living Laboratory: We/our supervisor will keep the anonymous survey information indefinitely as it may be used in future research.

There will be no risks associated with this study.

There will be no direct benefit to you in participating in this research. The research, however, might contribute to new knowledge on current student clothing consumption behaviours that could be used to help transition the student population toward more sustainable methods of consumption. If you would like to see how your information is used and have any questions about this study with the Petty Pedestrian research team, please feel free to send us an email [Contact Information: rb858553@dal.ca] after April 11, 2023.

If you have any ethical concerns about your participation in this research, you may contact Research Ethics, Dalhousie University at (902) 494-3423, or email ethics@dal.ca. You may also contact the researchers conducting the study at rb858553@dal.ca.

*Note: For the purpose of this study, undergarments and socks are not considered clothes or articles of clothing.

If you agree to complete the survey, please proceed with the questions below:

Question #1

Are you currently an undergraduate student at Dalhousie University, Studley Campus?

○ Yes

○ No

Question #2

What program are you enrolled in? Include major, minor, and certificates.

Your answer

Question #3

On average, how many articles of clothing do you purchase first-hand per year?

○ 0

○ 1 - 5

○ 6 - 10

○ 11 - 20

○ More than 20

Question #4

On average, how long do you keep newly purchased first-hand articles of clothing?

○ 0 - 6 Months

○ 7 - 11 Months

○ 1 - 2 Years

○ 3 - 5 Years

○ Longer than 5 Years

Question #5

On average, how many first-hand articles of clothing do you get rid of per year?

○ 0

○ 1 - 5

○ 6 - 10

○ 11 - 20

○ More than 20

Question #6

Below are some reasons for why people get rid of clothing. Number them from 1 to 3 in order of what most applies to you, with 3 being not as applicable, and 1 most applicable.

	1	2	3
No longer in style / No longer aligns with person preference	O	O	O
No longer fits	O	O	O
Worn out	O	O	O

Question #7

Below are some ways in which people get rid of clothing that no longer fits or that they are no longer interested in. Number them from 1 to 5 in order of what most applies to you, with 1 being most applicable, and 5 being least applicable.

	1	2	3	4	5
Throw in the garbage	O	O	O	O	O
Donate (to charity, a second-hand store, etc)	O	O	O	O	O
Give away to a friend / family member	O	O	O	O	O
Take to a clothing swap	O	O	O	O	O
Repurpose	O	O	O	O	O

Question #8

How important are the following to you when shopping for clothing? Rate from 1 - 5 for each choice, with 1 being most important and 5 being least important.

	1	2	3	4	5
Price	○	○	○	○	○
Brand	○	○	○	○	○
Environmental and/or Ethical Implications	○	○	○	○	○
Quality	○	○	○	○	○
Style	○	○	○	○	○

Question #9

Have you ever knowingly purchased fast fashion clothing?

○ Yes

○ No

Question #10

If you answered yes to the question above, were you aware of the environmental and ethical impacts associated with fast fashion? If you answered no, please leave this question blank.

○ Yes

○ No

Question #11

Do you ever purchase clothing from a second-hand store?

○ Yes

○ No

Question #12

If yes, how many of your clothes are second-hand? If you answered no, please leave this question blank.

○ All

○ Most

○ Some

○ A Few

○ None

Question #13

If no, what is the main factor that is / may be preventing you from purchasing second-hand clothing? If you answered yes, please leave this question blank.

○ Hygiene concerns

○ Inadequate access to second-hand stores

○ Fear of judgement from family / friends / society

○ Lack of preferred styles

○ Other: _____

Question #14

Indicate your degree of agreement with the following statement: environmental/ethical considerations are a factor that influences my clothing acquisition behaviors.

○ Strongly agree

○ Agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Disagree

○ Strongly disagree

Question #15

How often do you do research on clothing brands / companies to ensure you are purchasing sustainably produced clothing?

○ Always

○ Usually

○ Sometimes

○ Rarely

○ Never

Question #16

How interested are you in participating in each of the following methods of acquiring second-hand clothing? Rate from 1 - 5 for each method, with 1 being most interested and 5 being least interested.

	1	2	3	4	5
Thrifting / Second-hand stores	O	O	O	O	O
Clothing Swap (exchanging clothing with others)	O	O	O	O	O
Clothing Library (the same idea as a library, but for clothes)	O	O	O	O	O

Appendix B: Survey Posters and Social Media Graphic

Figure B1 Images of the different variations of posters put up around Dalhousie Studley Campus containing a brief description of the survey and a QR code linked to the Google Form.
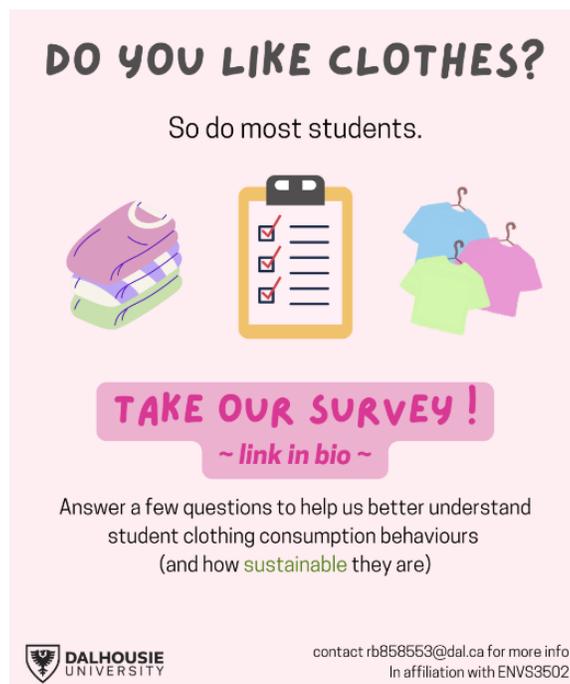

Figure B2 Image of the social media graphic shared on various Instagram accounts containing a brief description of the survey and a link to the Google Form.

Appendix C: Complete Results of Data Analysis

Table C1 Frequency of responses to the question: "Below are some reasons why people get rid of clothing. Number them from 1 to 3 in order of what most applies to you, with 3 being not as applicable, and 1 most applicable."

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)				Frequency of Response (OTHER PROGRAMS)				Chi-Squared Test (INDEPENDENCE)		
	1	2	3	Mode	1	2	3	Mode	X^2	df	p-value
No longer in style / No longer aligns	24.39%	31.71%	**43.90%**	3	35.16%	18.68%	**46.15%**	3	3.173	2	0.2046
No longer fits	**45.00%**	30.00%	25.00%	1	36.56%	**39.78%**	23.66%	2	1.2576	2	0.5332
Worn out	36.59%	**41.46%**	21.95%	2	33.33%	**37.63%**	29.03%	2	0.72625	2	0.6955

Table C2 Frequency of responses to the question: "Below are some ways in which people get rid of clothing that no longer fits or that they are no longer interested in. Number them from 1 to 5 in order of what most applies to you, with 1 being most applicable, and 5 being least applicable."

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)						Frequency of Response (OTHER PROGRAMS)						Chi-Squared Test (INDEPENDENCE)		
	1	2	3	4	5	Mode	1	2	3	4	5	Mode	X^2	df	p-value
Garbage	9.76%	7.32%	4.88%	9.76%	**68.29%**	5	14.13%	5.43%	11.96%	23.91%	**44.57%**	5	8.0307	4	0.09046
Donate	**56.10%**	17.07%	19.51%	2.44%	4.88%	1	**53.76%**	22.58%	7.53%	8.60%	7.53%	1	5.9996	4	0.1992
Give away to friend / family	34.15%	**36.59%**	12.20%	14.63%	2.44%	2	27.96%	**35.48%**	15.05%	16.13%	5.38%	2	1.1277	4	0.8899
Take to a clothing swap	17.07%	12.20%	19.51%	**29.27%**	21.95%	4	13.04%	8.70%	22.83%	**28.26%**	27.17%	4	1.1332	4	0.889
Repurpose	9.76%	17.07%	21.95%	**29.27%**	21.95%	4	18.48%	18.48%	19.57%	**28.26%**	15.22%	4	2.2308	4	0.6934

Table C3 Frequency of responses to the question: "How important are the following to you when shopping for clothing? Rate from 1 - 5 for each choice, with 1 being most important and 5 being least important."

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)						Frequency of Response (OTHER PROGRAMS)						Chi-Squared Test (INDEPENDENCE)		
	1	2	3	4	5	Mode	1	2	3	4	5	Mode	X^2	df	p-value
Price	**41.46%**	17.07%	34.15%	4.88%	2.44%	1	**36.26%**	24.18%	19.78%	10.99%	8.79%	1	6.0909	4	0.1925
Brand	15.38%	12.82%	10.26%	17.95%	**43.59%**	5	9.89%	16.48%	15.38%	18.68%	**39.56%**	5	1.5876	4	0.811
Environmental and / or Ethical Implications	12.20%	**41.46%**	26.83%	9.76%	9.76%	2	9.89%	17.58%	**34.07%**	24.18%	14.29%	3	10.489	4	**0.033**
Quality	**51.22%**	19.51%	14.63%	12.20%	2.44%	1	**32.61%**	28.26%	21.74%	11.96%	5.43%	1	4.7088	4	0.3185
Style	**36.59%**	29.27%	14.63%	14.63%	4.88%	1	**35.87%**	25.00%	19.57%	9.78%	9.78%	1	1.9993	4	0.7359

Table C5 Frequency of responses to the question: "Have you ever knowingly purchased fast fashion clothing?"

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)	Frequency of Response (OTHER PROGRAMS)
Yes	**82.93%**	**80.65%**
No	17.07%	19.35%
Mode	Yes	Yes

Table C6 Frequency of responses to the question: "If you answered yes to the question above, were you aware of the environmental and ethical impacts associated with fast fashion?"

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)	Frequency of Response (OTHER PROGRAMS)
Yes	**76.47%**	**85.33%**
No	23.53%	14.67%
Mode	Yes	Yes

Table C7 Frequency of responses to the question: "Do you ever purchase clothing from a second-hand store?"

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)	Frequency of Response (OTHER PROGRAMS)	Frequency of Response (ALL PROGRAMS)
Yes	**92.68%**	**92.47%**	**92.54%**
No	7.32%	7.53%	7.46%
Mode	Yes	Yes	Yes

Table C8 Frequency of responses to the question: "How interested are you in participating in each of the following methods of acquiring second-hand clothing? Rate from 1 - 5 for each method, with 1 being most interested and 5 being least interested."

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)						Frequency of Response (OTHER PROGRAMS)						Chi-Squared Test (INDEPENDENCE)		
	1	2	3	4	5	Mode	1	2	3	4	5	Mode	X^2	df	p-value
Thrifting / Second-hand stores	**70.00%**	15.00%	7.50%	2.50%	5.00%	1	**73.12%**	5.38%	5.38%	6.45%	9.68%	1	4.9492	4	0.2926
Clothing Swap (exchanging clothing with others)	**50.00%**	22.50%	20.00%	5.00%	2.50%	1	19.35%	**34.41%**	29.03%	8.60%	8.60%	2	13.369	4	**0.00961**
Clothing Library (the same idea as a library, but for clothes)	27.50%	17.50%	**35.00%**	12.50%	7.50%	3	22.58%	22.58%	**27.96%**	10.75%	16.13%	3	2.7001	4	0.6092

Table C9 Frequency of responses to the question: "Indicate your degree of agreement with the following statement: environmental/ethical considerations are a factor that influences my clothing acquisition behaviours."

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)	Frequency of Response (OTHER PROGRAMS)	Response Categories	Chi-Squared Test (INDEPENDENCE)		
				X^2	df	p-value
1	**35.71%**	16.13%	1 - Strongly Agree	8.4101	5	0.135
2	26.19%	25.81%	2 - Agree			
3	23.81%	**33.33%**	3 - Somewhat Agree			
4	9.52%	11.83%	4 - Neither Agree nor Disagree			
5	0.00%	0.00%	5 - Somewhat Disagree			
6	2.38%	5.38%	6 - Disagree			
7	2.38%	7.53%	7 - Strongly Disagree			
Mode	1	3				

Table C10 Frequency of responses to the question: "How often do you do research on clothing brands / companies to ensure you are purchasing sustainably produced clothing?"

Category	Frequency of Response (SUST/ENVS/EIA PROGRAMS)	Frequency of Response (OTHER PROGRAMS)	Response Categories	Chi-Squared Test (INDEPENDENCE)		
				X^2	df	p-value
1	7.32%	6.59%	1 - Always	4.6689	4	0.323
2	**34.15%**	19.78%	2 - Usually			
3	29.27%	29.67%	3 - Sometimes			
4	24.39%	**30.77%**	4 - Rarely			
5	4.88%	13.19%	5 - Never			
Mode	2	4				