Sustainability in Style: Analyzing the Influence of Environmental Ethics on Gen Z Consumers

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Introduction

As environmental sustainability and growing concerns surrounding climate change become an increasingly important topic among the younger generation, there has been an emerging trend of brands embracing the green purchasing ethos in an effort to appeal to a new generation of consumers. This project seeks to examine the relationship between environmentally sustainable practices and brand endorsement among Generation Z (Gen Z) consumers. By analyzing the effect of consumer values and attitudes on purchasing behavior, this paper will examine if sustainability has a significant effect on consumer behavior. This paper will serve not only as insight into the purchasing behavior of Gen Z, but also as a potential guide for marketers attempting to appeal to a younger and increasingly influential generation.

According to Rahman et al (2023), search engine inquiries on fashion sustainability have increased steadily since 2010, signifying a burgeoning interest in the intersection of fashion, environmental impact, and climate change (p. 1). As discourse surrounding consumer sustainability has increased, we have seen a widespread rejection of fast fashion, “low-cost clothing collections based on current, high-cost luxury fashion trends" (Joy et al, 2012, p. 275). However, despite resistance to the fast fashion industry, its consumer base and market growth continues to rise. With a large disconnect between sustainability and the rise of fast fashion, this paper seeks to explore the effect of an environmentally conscious ethos on consumer trends among the 26 and younger population. As a new generation grows increasingly environmentally conscious and brands begin to turn to a more sustainable product, it is invaluable for market researchers to track and analyze consumer trends in a shifting global economy.

Terminology

In the context of this paper, Gen Z will refer to the demographic division preceded by Millennials, also known as Generation Y. Exact time frames for cutoffs regarding qualification are heavily debated; however, it is generally agreed upon that the start date begins around 1997 and ends somewhere around 2012. I will use this timeline throughout as reference.

Environmental sustainability delineates the ethical use of natural resources, with particular attention to the conservation of ecosystems via eco-friendly practices. In the context of textiles and apparel, the term often refers to the "tradeoff between economic productivity and environmental impact, as an important perspective in product decisions for textiles and apparel companies" (Luo et al, 2021, p. 1). Adopting sustainable practices involves promoting strategies that reduce pollution, conserve resources, and communicate a comprehensive ethical understanding across the industry pipeline. Strategies include the use of sustainable materials, ethical production practices, and the promotion of both circular and slow fashions.

When it comes to slow fashion versus fast fashion, the apparel industry is constantly at war with itself, with slow fashion promoting more sustainable practices and fast fashion favoring maximum capital. This paper will refer to fast fashion as an ethos that "allows companies to optimize their supply chain to respond quickly to new fashion trends and consumer demands by putting fashion products in stores with a delivery time of less than a month" (Castro-Lopez et al, 2021, p. 2). Slow fashion will refer to the practice of using "any garment or accessory that respects the environment, human health and workers, and promotes the use of sustainable materials, the reuse of existing materials and local production" (Castro-Lopez et al, 2021, p. 2). In recent years, slow fashion has transformed into an increasingly desirable business model favored by both consumers and companies.

Literature Review

Beginning in the late 18th century and continuing into the 19th century, the industrial revolution marked a shift from manual-based labor processes to predominantly machine-driven production. This technological paradigm had profound effects on both society and the global economy, generating a new class of wealth and poverty, and galvanizing the proliferation of capitalism. In addition to economic impact, the industrial revolution spurred the beginning of intense fossil fuel consumption in the production processes (Castro-Lopez et al, 2021, p. 1).

The Industrial revolution would have lasting impact on society, forever changing modes of production and instilling a profit-over-ethics mentality into the business model. In regards to the apparel industry, highly skilled textile laborers were replaced with sewing machines, which allowed a massive decrease in processing speed times (Linden, 2016, p. 5). With vast economic development came the rise of the consumer class and a growing demand for ready-to-wear clothing (Linden, 2016, p. 3). These shifts allowed for a decrease in production cost and an increase in merchandise (Linden, 2016, p. 5).

The trend of ready-to-wear fashion continued well into the following centuries. In the 1950s, the concept of prêt-à-porter emerged, emphasizing the optimization of the supply chain via fast delivery times in an effort to quickly deliver trends (Castro-Lopez et al, 2021, p. 2). This in turn, made fashion more accessible to wider audiences and paved the way in "establishing fast fashion as a production and consumption model" (Castro-López et al., 2021, p. 3). The trend of increased production at quicker turnaround rates only increased from there.

The mid-1980s saw the shift from cost-effective, mass-produced, standardized styles with infrequent change to an increased production of fashion-forward styles (Bhardwaj & Fairhurst,

2010, p. 166). This resulted in the emergence of two noticeable trends: the introduction of multiple fashion seasons and the further transformation of apparel infrastructure.

In the context of production and consumer behavior, fashion is viewed as a transient and cyclical phenomenon. It experiences a short life cycle, traditionally consisting of four stages: introduction, growth, mass conformity, and decline (Bhardwaj & Fairhurst, 2010, p.167). With growing demand for a broader selection, the early 1990s saw retailers aim to diversify and respond swiftly to evolving fashion trends (Bhardwaj & Fairhurst, 2010, p. 167). This shift markedly prioritized novelty over cost efficiency. This led to an expansion of the previously two season fashion calendar, introducing additional mid-seasons, and in turn, placing an increased pressure on suppliers to deliver smaller batches with shorter delivery times (Bhardwaj & Fairhurst, 2010, p. 167).

This shift drove competition within the industry, leading to a mass switch "from product-driven to buyer-driven chains" (Bhardwaj & Fairhurst, 2010, p. 167). With this change, came the emergence of outsourcing, the process of contracting out certain business functions to external third-party entities, typically low-wage countries, in an effort to cut production costs (Bhardwaj & Fairhurst, 2010, p. 168). This trend would continue in the decades that followed, becoming an industry standard.

Present-day fast fashion, categorized by rapid responsiveness, is reliant on real-time data rather than trend forecasting (Bhardwaj & Fairhurst, 2010, p. 169) The current system is best described via the "take-make-use-throw away system," which encourages the sale of more items at a lower cost (Jimenez-Fernandez et al., 2023, p. 1).This framework is reflective of the "industrial mindset that perceives resources as inexhaustible" (Jimenez-Fernandez et al., 2023, p. 1). In terms of profitability, this system has paid off. Currently, the fashion industry accounts for

more than 2% of the world GDP, or an estimated 3 billion dollars (Jimenez-Fernandez et al., 2023, p. 1). However, this has come at a cost to the environment.

As of 2023, the fashion industry is one of the most polluting industries in the world, second only to the oil industry (Jimenez-Fernandez et al., 2023, p.1). It is the fourth largest consumer of both raw materials and water (Jimenez-Fernandez et al., 2023, p.1), accountable for 20 percent of global water waste and 10 percent of the global emissions waste (Castro-López et al., 2021, p. 2). Additionally, only 15 percent of textiles are recycled, with over two thirds finding their way to landfills (Jimenez-Fernandez et al., 2023 , p. 1).

Where it stands now, this system is unsustainable. While profitable, it's exhaustive. In response to decades of excess consumption, several trends related to sustainable production and consumption have emerged in the past decade. Referred to as circular fashion or circular economy, this framework recognizes the limited availability of resources and advocates for an economic system centered on restoration (Jimenez-Fernandez et al., 2023, p. 2). It is defined by the principles of taking, making, using, reusing, and repeated reuse, with an objective of enabling the repeated use of resources, establishing a closed loop for material flows and, in turn, minimizing waste (Jimenez-Fernandez et al., 2023, p. 2). In addition to this model, several other alternatives to fast fashion have grown popular in recent years, including thrifting and the use of e-tail sites such as eBay, Depop, and Vinted.

Several benefits result from a more sustainable business model, including economic growth through increased competition and innovation (Jimenez-Fernandez et al., 2023, p. 3). In addition, adopting sustainable practices will reduce the cost of raw material, through prolonging product lifespan and extracting maximum value from each item produced. This in turn fosters innovation in both technology and business models. The circular economy model also

encourages collaboration between companies, stimulates the demand for new services, and is expected to generate higher employment levels, particularly for a high-skilled workforce (Jimenez-Fernandez et al., 2023, p. 3). Despite the immediate returns of the prevalent system, slow fashion provides the opportunity for lasting economic growth and novel invention.

According to Castro-Lopez et al (2021), “the consumption of fashion products is an effort by consumers to manifest their thoughts and feelings or the image they wish to be perceived by the society” (p. 4). Increasingly, consumers are seeking products that reflect their moralistic beliefs. What they desire, however, may come at a higher cost. In the context of sustainable fashion, prices tend to be slightly elevated. The customer perceived value, defined as the consumer's assessment of a product's benefits weighed against the associated costs in terms of money and time, can comprehensively explain this dynamic (Castro-López et al., 2021, p. 4). As demand for the adoption of environmentally responsible practices in production processes increases, companies, in an effort to enhance their market position and profitability, are striving to offer stylish products while also improving production processes (Castro-López et al., 2021, p. 4). This focus on sustainability positively influences consumer attitudes and purchasing behavior, leading to behavior modification for environmental protection and an increased willingness to purchase products, regardless of price (Castro-López et al., 2021, p. 4).

The retail industry holds immense consumer power. The way the system has evolved, allows consumers to directly influence the industry through their purchasing behavior (Mehta, 2022, p. 11). Generation Z, also coined the “True Gen,” has a unique perspective on consumption and brand relationships (Francis & Hoefel, 2018, p. 2). They view consumption as access rather than possession, express their individuality through the products they consume, and prioritize ethical concerns in decision-making (Francis & Hoefel, 2018, p. 2). This shift is not

limited to Gen Z, with the younger generation possessing the capability of influencing the entire demographic spectrum (Francis & Hoefel, 2018, p. 2).

Generations are shaped by the context of their environment. Boomers, born on the tail-skirts of World War II, used "consumption as an expression of ideology" (Francis & Hoefel, 2018, p. 2). Generation X, born between 1960 and 1979, used consumption as a form of status (Francis & Hoefel, 2018, p. 2). Millennials, or Generation Y, born between 1980 and the mid-1990s, used consumption as a means of generating experience (Francis & Hoefel, 2018, p.2). As all generations tend to, Gen Z differs greatly from its predecessors. As the first to experience an entirely digital world, they have grown up with access to information at the click of a button, making them highly cognitive and skilled in seamlessly incorporating virtual and real-world encounters (Francis & Hoefel, 2018, p. 2). The consumption of Gen Z is encapsulated by its analytical nature, and often reflects their core values.

Methodology

This paper has been conducted using a secondary analysis approach, utilizing existing survey data and previous academic research. Survey data used was sourced from the National Institute of Health (NIH) and can be attributed to Annarita Colasante and Idiano D'Adamo. Source data contained a comprehensive insight into consumer behavior within the confines of the apparel industry, delineating consumer habits and preferences in regard to ecological sustainability. 402 participants were given a questionnaire comprised of a total of 89 questions, the results of which have been made public in an attempt to raise awareness of the bioeconomy. All data used has been coded for anonymity purposes, with the only personal identifiers being age, gender, region, income, and education.

Once this data was retrieved, the spreadsheet was pulled up on Excel, where five out of six internal spreadsheets were deleted due to their subsidiary contents. From there the .xls file was converted into .csv format, where it was then uploaded to R. I first began by cleaning the data. The first version of the table, which I labeled as *fashion*, contained 401 observables. In order to show only the subset within the Gen-Z category, I first organized the data by age using the order () function (*fashage <- fashion[order(fashion$age),]*). From there, I was able to separate those below the age of 26 from those above using the indexing function (*fashage <- fashage[1:137,]*) I again used the indexing function to delete empty columns (*fashage <- fashage[,-46:-50]*). Through this process, I was able to narrow extract 137 rows and 79 columns, which became the new dataset *fashage*.

From there, the distinct () function was deployed in order to identify unique rows. Using the pipe function, a new dataset was created sans non-unique identifiers (*fashage <- fashage %>% distinct ()*). The next step was to narrow down the now 79 columns, deleting anything non-essential. For this step, the select () function was utilized, and the following columns were deemed essential: "*i_clothes_fashion*," "*i_clothes_environment*," "*pro_brown_firms*," "*pro_bio2_clothes*," "*age*," "*education*," and "*gender*" (née "*female*").

With 7 columns and 135 rows, the data was now ready to be transformed from character to integer. For this step, I exported the .csv file back to Excel where the data would be modified. The following key was then created:

(i_clothes_fashion) *When buying a cloth for yourself, how much do you consider the following items important? is trendy (fashion)*		*(i_clothes_environment)* *When buying a cloth for yourself, how much do you consider the following items important? is produced in an environmentally respectful manner*		*(pro_bio2_clothes)* *How often do you buy clothes with labels certifying respect for the environment?*		*(pro_brown_firms)* *How often do you avoid buying products from companies that do not respect the environment in their production cycles?*	
Input	Output	Input	Output	Input	Output	Input	Output
Not at all	1	Not at all	1	Never	1	Never	1
Slightly	2	Slightly	2	Rarely	2	Rarely	2
Moderately	3	Moderately	3	Sometimes	3	Sometimes	3
Important	4	Important	4	Often	4	Often	4
Very important	5	Very important	5	Always	5	Always	5

Using the find and replace function, each character was assigned its new numeric value (1-5), based on level of importance and frequency. Once this was complete, the file was once again exported to R and renamed *fashion2*.

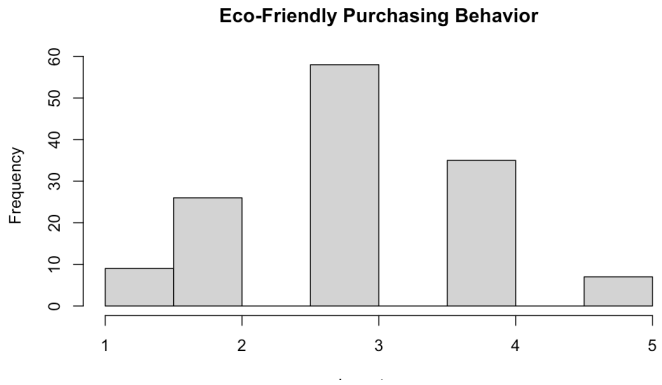
With the data now cleaned, an exploratory analysis could finally be conducted. In an effort to get an initial idea of the data and the relationships between each factor, I began with the summary () function, paying particular attention to the mean values of each column. Histograms were then created for "*i_clothes_fashion*" (titled "Trend Frequency), "*pro_brown_firms*" (titled "Avoidance of Products That Do Not Respect the Environment"), "*pro_bio2_clothes*" (titled "Eco-Friendly Purchasing Behavior", and *"i_clothes_environment*" (titled "Eco-Value Frequency"), in order to see the most frequently occurring sentiments. Additionally, the length () function was used to determine exact frequencies for the aforementioned columns.

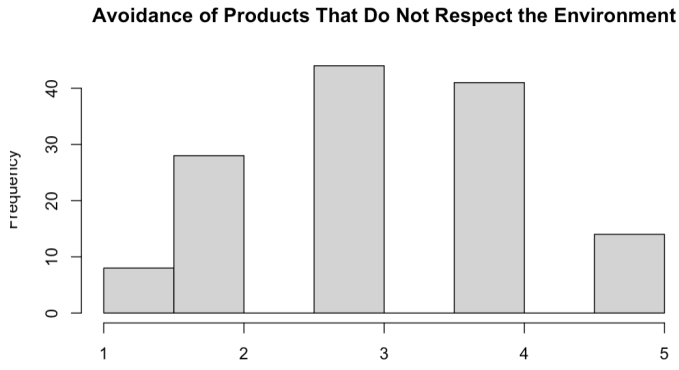
Once this was complete, I moved on to preparing the data for the correlation test. In order to do this, four subsets of data were created drawing the already edited data set fashion2. These included: *df_fashion*(comprised of "*pro_bio2_clothes*" and "*i_clothes_environment*"),

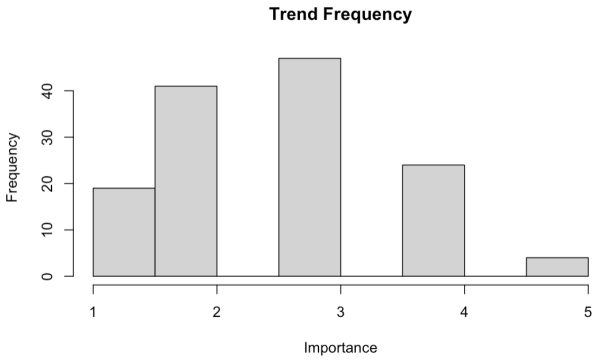
df_fashion2 (comprised of "pro_bio2_clothes' and "*i_clothes_fashion*"), *df_fashion3* (comprised of "*pro_brown_firms*" and "*i_clothes_environment*"), and*df_fashion4* (comprised of "*pro_brown_firms*" and "*i_clothes_fashion*"). I then checked for normality using both the Quantile Quantile plot function and the Shapiro-Wilk normality test. This step was repeated with each of the columns in the new data subsets. Finally, using both the Pearson r function and the Spearman r function, I conducted correlation tests on *df_fashion*, *df_fashion2*, *df_fashion3*, and *df_fashion4*.

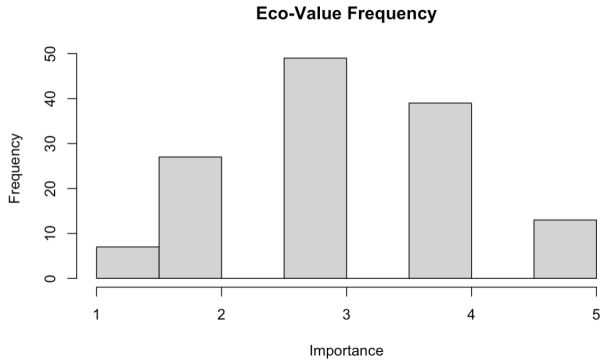
Results

Frequency and mean determination comprised the most important aspects of the exploratory analysis. The histogram generated for trend frequency displayed skewed results, with the majority of the data falling to the left of the chart. This indicated less of an emphasis on trends among consumer sentiment, with the highest responses reflecting slight importance (2) and moderate importance (3). The histogram generated for ecological value frequency had a distribution more reflective of normality, with the heaviest responses falling under moderately important (3) and important (4). This indicated a greater inclination towards more eco–friendly products in comparison to trend-forward. Results for eco-friendly purchasing behavior, also showed a fairly evenly distributed consensus. Behavior patterns were concentrated predominantly in the sometimes (3) and often (4) tiers, however many respondents also reported rarely (2) purchasing clothing products based on company stance. Finally, purchasing patterns related to the avoidance of products from companies that do not practice environmentally friendly means of production revealed a fairly normal distribution. The most common responses were found under the sometimes (3) and often (4) tiers, however there was a noticeably large response under the rarely (2) tier.









A summary analysis of the data revealed further insights into consumer sentiment, particularly in terms of mean distribution. Under trend importance, the average response score was reported at 2.652, marking a prevalent answer somewhere between slightly important (2) and moderately important (3). Under ecological value, the average response score was reported at 3.178, with the prevailing score falling between moderately important (3) and important (4). Under environmentally produced behavior habits, the average score came to 3.037, revealing a dominant consumption pattern between sometimes (3) and often (4). The final average revealed for the avoidance of products was calculated at 3.185, with purchasing habits falling between sometimes (3) and often (4).

Using the length () function, the total numbers per category were recorded. In terms of ecological value, the following responses were recorded: 13 respondents reported the ethical production of products as very important (5), 39 reported it as important (4), 49 reported it as moderately important (3), 27 reported it as slightly important (2), and 7 reported not considering ethical production during the purchasing process (1). Under trend value, respondents reported the following: 4 considered style very important when making purchasing decisions (5), 24 reported it as important (4), 37 reported it as moderately important (3), 41 reported a slight importance (2), and 19 reported the lack of importance (1). In response to purchasing patterns when considering ethical production, the following results were reported: 7 respondents claimed to always purchase ethically produced clothing (5), 35 reported often purchasing (4), 58 reported sometimes purchasing (3), 26 reported rarely purchasing (2), and 9 reported never purchasing (1). Finally, when it came to avoiding unethically produced products, respondents revealed the following: 14 responded never purchasing unethically produced clothing (5), 41 reported often avoiding the purchase of such products (4), 44 reported sometimes avoiding purchasing (3), 28 reported rarely avoiding purchasing (2), and 8 reported never avoiding such products (1).

The Pearson and Spearman correlation tests revealed significance between the following categories: purchasing patterns when considering ethical production and the ethical production value (*pearson_1/spearman_1*), purchasing patterns when considering ethical production and trend value (*pearson_2/spearman_2*), the avoidance of purchasing unethically produced products and ethical production value (*pearson_3/spearman_3*), and, finally, the avoidance of purchasing unethically produced products and trend value (*pearson_4/spearman_4*). The results of pearson_1 and spearman_1 revealed significance scores of .46 and .44, respectively. The results of pearson_2 and spearman_2 revealed significance scores of .19 and .17, respectively.

The results of pearson_3 and spearman_3 revealed significance scores of .36 and .34, respectively. The final tests, pearson_4 and spearman_4, revealed significance scores of .13 and .17, respectively.

Analysis

The findings of this study highlight the complex dynamics between sustainability values and purchasing behaviors among Gen Z consumers. While the results indicate a general inclination towards eco-conscious decision-making, certain nuanced patterns emerge, providing deeper insights into the interplay of environmental ethics and consumer behavior.

Trend Value vs. Environmental Value

The disparity between the significance placed on environmental considerations and trend value emphasizes a shift in consumer priorities. The lower scores for trend importance compared to ecological value reflect a generational pivot towards prioritizing ethics over aesthetics. However, it is essential to note that while environmental values took precedence, they did not completely overshadow the importance of trends, suggesting that Gen Z consumers are seeking a balance between style and sustainability. This dual expectation places increased pressure on brands to innovate, merging fashion-forward designs with environmentally sustainable practices.

Behavioral Trends in Ethical Consumption

The purchasing behaviors observed in this study revealed that while many respondents reported frequent consideration of eco-friendly products, a notable segment still displayed occasional or rare adherence to such habits. This indicates a gap between environmental awareness and actionable commitment. Possible barriers to more consistent eco-conscious purchasing may include higher costs associated with sustainable fashion, limited availability, or perceived trade-offs in quality or style. Addressing these barriers through affordable pricing strategies, wider

product availability, and educational campaigns could bridge the gap between intention and action.

Correlation Insights

The moderate correlations between purchasing behaviors and environmental values underscore the partial influence of ethical considerations on decision-making. Interestingly, the weaker correlations between trend value and ethical production patterns suggest that while Gen Z appreciates sustainability, the impact of style on purchasing decisions cannot be entirely dismissed. These findings indicate that sustainable fashion must not only align with environmental ethics but also resonate aesthetically with the target audience to achieve maximum market penetration.

Conclusion

As of 2023, the fashion industry stands as one of the most polluting enterprises globally, emphasizing an urgent need for a shift toward more sustainable practices. This study emphasizes the unsustainable nature of the prevailing "take-make-use-throw away" system, which has contributed significantly to environmental degradation. The rising prominence of environmental sustainability and climate change concern among the younger generation has sparked a shift in consumer behavior, challenging traditional models of fast fashion. Previous research indicates (Francis & Hoefel, 2018, p. 2) a growing interest among Gen Z in embracing a green purchasing ethos, and rejection of fast fashion in favor of more sustainable alternatives. .

Utilization of a secondary analysis approach via existing survey data, offers valuable insight into Gen Z consumer behavior within the apparel industry. The results of the exploratory analysis reveal a notable emphasis on eco-friendly considerations over trend-focused preferences among Gen Z consumers. Correlation tests further highlight a moderate degree of significance

between purchasing patterns aligned with ethical production and environmentally conscious values.

Ultimately, this study contributed to understanding of the evolving landscape of consumer behavior, highlighting the pivotal role of sustainability in shaping the preferences of Gen Z. As the global economy undergoes a transformation towards more environmentally conscious practices, businesses that embrace and communicate sustainability are likely to thrive in this new era of consumer awareness.

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