THE INFLUENCE OF GENERATION X, Y AND Z ON SUSTAINABLE FASHION PRODUCTS

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ABSTRACT

Sustainable fashion is a term used to describe fashion products that are designed, produced, and sold with the goal of minimizing their environmental impact and promoting social and economic sustainability. The fashion industry has a significant role in contributing to social and environmental problems because of its production methods, use of fibers, and transportation. Behavioral intention of customers towards fashion sustainable products might differ based on the awareness. This awareness might be related to usage of raw material, usefulness, accessibility, and forms of sustainable fashion products. Efforts are made in this study to understand the behavioral intention of three different generations: X, Y and Z. It was found from the study that there is no difference in the perception related to accessibility of these sustainable products. A significant difference related to usefulness and forms of sustainability is observed of Generation X with other generations. A significant difference is also found between Generation Y with other generations related to raw material procurement.

Keywords: Sustainability, Generation Z, Sustainable Fashion.

INTRODUCTION

Sustainable fashion is a term used to describe fashion products that are designed, produced, and sold with the goal of minimizing their environmental impact and promoting social and economic sustainability. This involves eco fashion, secondhand fashion, reverse logistics, reuse and recycling. According to Pasricha and Greeninger (2018), sustainable fashion research aims to develop new technologies, materials, and design methods to reduce the environmental impact of the fashion industry. This can include reducing the use of water, energy, and chemicals in the production of clothing, as well as reducing waste and pollution.

Clothing may prove to be challenging in sustainable and economic reforms but it's vital for today's scenario. The fashion industry has a significant role in contributing to social and environmental problems because of its production methods, use of fibers, and transportation. It employs 9.3% of people worldwide and accounts for 4% of exports (Caniato et al., 2012) with 35% of material inputs becoming waste and only 1% being recycled (Pero et al., 2020). Sustainable fashion refers to a comparatively recent movement within the world of fashion that aims to slow down worldwide production and consumption to build an industry that is more sustainable over time. The goals of this movement include reducing the quantity of textile waste created and environmental depletion.

The textile and apparel industry are responsible for several harmful environmental effects, including microfiber contamination, climate change, and pollution of both air and water. The fashion industry has seen a massive expansion in the last few years but is having a negative impact on the environment and society, due to fast fashion trends, excessive use of natural

resources, unsafe working conditions, and huge disposal of standardized fashion items (Fletcher 2010). It is responsible for theproduction of a significant number of wastes, with an estimated 92 million tons of textile waste created per year   on a global basis. The fashion industry is responsible for 10% of the total carbon emissions that are produced worldwide which is greater than maritime shipping and international flights and the fashion's emissions of harmful greenhouse gases are likely to increase by 50% by 2030 (Zurich, 2023). Caniato et al. (2012) expressed that the amount of greenhouse gas that is emitted annually by the fashion industry is comparable to that which is produced by the economies of France, Germany, and the United Kingdom combined. Falco et al. (2019) believed that washing synthetic textiles contributes up to 35% of themicroplastics found in the water. As a direct result of the fashion industry's growing awareness of its duties to the surrounding natural environment, sustainable fashion practices are becoming the need of the hour. The goal of sustainable fashion is to create a fashion industry that is more moral and accountable to its customers.

Kaikobad et al. (2015) suggested that the sustainability of fashion in the worldwide is the major considerable issue. It is not only a passing fad but rather a movement that is gradually receiving some attention and support by different organizations. Though some of events like Portland Fashion Week highlight sustainable designers and brands such as Fat Face, Minna, Mirabelle, Monsoon, New Balance, Osborn Shoes, Pachacuti, People Tree, Polly Wales, Sea salt, Stella McCartney, and H&M are getting associated with sustainability, but industry is not able to fully embrace sustainability and continue to prioritize low-cost production over sustainability. According to a report by McKinsey & Company (2021), the market for sustainable fashion is expected to grow at a rate of 15-20% per year, and by 2030, it could make up as much as 30% of the market share in the fashion industry. With the emergence of a shift towards sustainability and growing consumer demand for ethical and sustainable products, it is vital for the fashion industry to go green. ThredUp (2020) in their report shared that the second-hand market is growing quickly and could reach $77 billion by 2025. This trend shows that people may not be only interested in materials that are good for the environment, but they are also looking for second-hand options. This further means that sustainable fashion has the potential to change the fashion industry, and long-term success is likely for companies that prioritize sustainability and social responsibility. Consumers have the ability to persuade the fashion industry to address the damage it causes to the environment through their purchasing decisions (Forbes, 2023). However, according to Harris et al. (2016), consumers have limited awareness of the influence of clothing on the environment because clothing is not a purchase made with the intention of doing good for   others. The purpose of this study is to hence get an insight into customer attitudes and preferences in relation to sustainable fashion to make constructive recommendations to the fashion industry.

Rationale

Although there are numerous studies related to sustainability in the fashion industry, but they all lack an integrative insight. To address this gap, we combined i) a comprehensive systematic review of literature; ii) text analysis from different research paper, sustainability reports of fashion companies, blogs and articles to identify factors related to fashion sustainability and iii) a wide survey to understand customer perceptions. The goals of this study are to comprehend the effect sustainable fashion has on consumers' propensity to make purchases and propose strategies for introducing sustainable fashion. The research helps businesses understand and satisfy this demand by providing solutions for the adoption of sustainable

fashion. In addition to this, it contributes to the promotion of a fashion industry that is more ethical and responsible, which is to the advantage of both society and the environment. By providing recommendations for methods of adoption and implementation, the goal of research is to help businesses as they work to introduce more environmentally responsible fashion.

LITERATURE REVIEW

Sustainable fashion can be made more accessible and affordable by increasing awareness, advertising, recycling, and making the supply chain more transparent. Clothing can be made more affordable by cutting the profit margin and making more of it through mass production and make sustainable clothing dress able, trendy, exclusive, and comfortable.With the assistance of expanded information networks and enhanced brand openness, consumers will be better equipped than ever before to make more ethical purchase decisions, and they will also have the capacity to transform the fashion industry (Oliveira et al., 2022).

Todeschini et al. (2017) identified main trends and drivers of sustainable business model innovation in the fashion industry. Lee et al. (2023) examines the effect of luxury brands' sustainable fashion marketing activities on authenticity, purchase intention, and brand attitude and conclude that authenticity, brand attitude, and consumer purchase intention varied greatly depending on luxury brands' sustainable fashion marketing types. Thorisdottir (2019) identified three themes based on extensive literature review of papers related to fashion sustainability: integration of sustainability-related practices within fashion business models, measurement and reporting, and sustainability drivers influencing fashion business models.

Campos et al. (2023) aim to identify the role of the voluntary simplicity lifestyle on the environmental activism behavioral trait, as well as the relationship of these two constructs on the sustainable fashion purchase intention. Kaushik and Khare (2022) examine the effect of cosmopolitanism, global social identity, green peer and social media on green apparel knowledge and sustainable fashion perception. Further, it explored the mediating effect of green apparel knowledge and sustainable fashion perception on behavioral intentions and electronic Word-of-Mouth (eWOM). Jung and Jin (2014) opinioned that slow fashion comprises five dimensions: equality, authenticity, functionality, localism, and exclusivity. According to Wang et al. (2018), Fashion Index Model is the indication of positive ethical business making eco- friendly patterns. In terms of sector wise analysis, the global apparel industry is evaluated in trillions. Despite adding to GDP, it has negative impacts such as worker exploitation, overuse of resources, under-utilization of clothes, waste generation etc.

Shen et al. (2013) reduce the eight dimensions of sustainable fashion (Recycle, Vintage, Artisan, Custom made, Fair Trade, locally made, Organic, and Vegan) into four factors and most awareness was related to Recycle/Vintage and least awareness was for Organic/Vegan.

Price is an important factor with respect to fashion sustainable products. Nielsen (2019) concludes that 73% of global millennials and 66% of global respondents are willing to pay more for products that are good for the environment. Also, a survey by McKinsey (2020, 2021) found that sustainability is becoming an important factor for consumers when they decide what to buy, with 64% of respondents willing to pay more for products that are good for the environment. Businesses like H&M and Zara that use sustainable fashion have seen their sales and reputations improve. The Conscious Collection from H&M has been successful at attracting customers who care about sustainability. Between 2018 and 2019, sales of the collection went up by 40%.

There are different forms of sustainability fashion products. Upcycling refers to generate new goods of better perceived value, utility, and/or quality than the original products (Dissanayake & Sinha, 2015). Recycling driver is producing different products from existing products by converting materials. Vegan refrains from using raw materials made of animal origin thereby reducing energy consumption.

Mandarić et al. (2022) state that participants have a favorable attitude toward the long-term viability of fashion companies, and a correlation between the significance of long-term viability of fashion brands and consumers' decisions to purchase sustainable clothing products was discovered. However, the sustainability of a fashion brand or product is among the least important factors in their purchasing decision. Grazzini, Acuti and Aiello (2020) in their study state that sustainable fashion product affect purchase intentions and establish brand relationship. The luxury brands offering sustainable products, showed more customers interact and the customers show more inclination towards buying sustainable fashion products rather than non-sustainable products.

Diddi and Nan Yan (2019) conclude that cloth repair and community repair events should be encouraged whole heartedly by the government as it's a collaborative effort of people and the government to add sustainable consumption. These are social and enjoyable way to shift mindsets towards repairing or reusing or mending instead of buying a new line of products. The ethics of fixing should be promoted instead of dumping the clothes. Swapping, sharing and mending have become popular ways to address sustainability at the community levels. Collaborative consumption promotes community awareness at the national levels. The global ecological problems can create diversified learning around socio-material aspects of garments and their care. Pei et al. (2020) in their study state that customer experience is the major factor contributing towards customer satisfaction. Strong customer relationships will lead to increased customer loyalty and then repetitive more business.it is word of mouth which reflects customer loyalty. Customer satisfaction is directly proportion to the brand and its reputation. Various ways to strengthen this bond can be multi- channel support, feedback across all the parameters and check customer feedback regularly. Good customer service is likely to create a positive customer satisfaction and henceforth positive customer experience.

Hur and Cassidy (2019) conclude that fashion industry is the most evolving and ever-changing platform wherein the trends and apparels change every now and then. The sustainable raw material which is "organic" and eco-friendly is yet to be worked upon which user-friendly as well. The interest level of the users and their open-ended approach towards the understanding the importance of greener fashion industry is high on the standard deviation. Personal responsibility and consciousness also contribute towards implanting the sustainable fashion. The geographical features of a country also affect the fashion statements. The need to blend education in fashion business context which bridges the gap between perceptions, attitudes, and involvement regarding sustainability. Gazzola et al. (2020) generation is the driving force in today's fashion industry from gender perspective. We need to drive concrete solutions are required from demand and supply end. The deep transformation in the lifestyles of final consumers is redefining business models. The fashion trends and analysis are based on descriptive and quantitative point of view of consumers.

Previous research emphasizes that awareness and knowledge influence sustainable consumption. Chen and Chang (2013) revealed that environmentally aware consumers are more inclined to buy sustainable clothes. Lee and Shin (2018) state that eco-conscious consumers buy more eco-friendly products. Gruber and Schlegelmilch (2018) conclude that customers' attitudes

towards eco-friendly items were positively associated with their perceived product quality and value, which enhanced their propensity to buy them. Caniato et al. (2012) identified three factors: the drivers that push companies to adopt "green" practices, the different practices that can be used to improve environmental sustainability, and the environmental KPIs measured by fashion companies.

Hypotheses

H₁: *Forms of sustainable fashion products positively influence the behavioral intention of customer.*

H₂: *Accessibility of sustainable fashion products positively influence the behavioral intention of customer.*

H₃: *Usefulness of sustainable fashion products positively influence the behavioral intention of customer.*

H₄: *Raw Material of sustainable fashion products positively influence the behavioral intention of customer.*

RESEARCH METHODOLOGY

Different research papers, sustainability reports of fashion companies, tweets and blogs related to fashion sustainability were extracted for determining the most frequent words related to sustainability. NLP and GSDMM text processing techniques were executed to identify the key factors related to fashion sustainability. The raw data was cleaned to extract the useful words in the document. The cleaning was done in multiple stages. Blank empty rows are removed and other fiscal year-related information. Removal of images, header, footer, special characters, symbols and extra spaces was done through pattern matching. In the next step, lemmatization was executed and through tokenization different words were extracted from the sentences. Meaningful words were then extracted after removal of the stop words. GSDMM is a topic modelling algorithm, highly effective in short-text modeling. Since the data was small in size (<50 words per sentence) it was better to assign a single topic to sentence rather than assigning a range of topics to the same sentence. GSDMM inputs the processed text and returns the cluster number corresponding to the sentence. The function also identifies the most frequent words occurring in a particular cluster. Based on the similar cluster, the different words were identified. The different words included environment, awareness, material, recycle, design, trend, eco-promoting, vegan, production, reasonable, accessibility, organic, comfort, price, mass production, brand, re-commerce, upcycle, resources, health and others. Based on these words and extensive literature review, research questions were formulated.

The data gathered using the survey instrument produced and the sample chosen should be processed and analysed using appropriate statistical procedures. For data analysis, this study used two significant statistical techniques: Exploratory Factor Analysis (EFA) and Structural Equation Modelling (SEM). Path Analysis was used to investigate the proposed hypotheses as well as to evaluate the structural model fit. For EFA and SEM, the SPSS 20 and AMOS 20 software were used. The basic model was created to test the following hypotheses with the sample size 322.

The moderating effect of age is tested through multi-group analysis. This study divided the entire sample into three subgroups according to age: generation X, Generation Y and Generation Z the objective of multi-group simultaneous path analysis is to determine whether the path coefficients for the relationships between different factors (forms of sustainable fashion

products, raw material used, usefulness, and accessibility) and behavioral intention were equivalent across the three age groups.
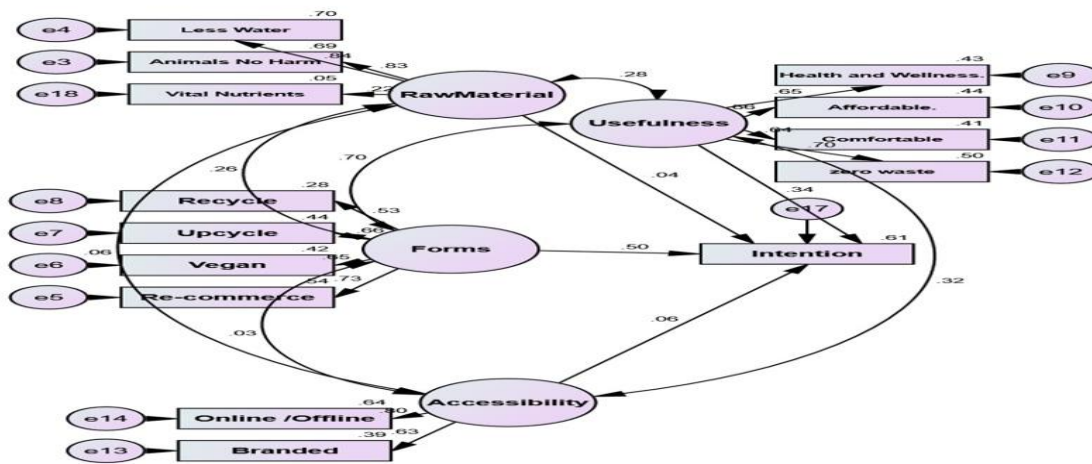
FIGURE 1
IMPACT ON BEHAVORIAL INTENTION OF FASHION SUSTAINABLE PRODUCTS

RESULTS AND DISCUSSION

SEM results display the moderating effects of age on the factors influencing the behavioral intention of customer towards sustainable fashion products. The annexure-1 shows the $\chi2$ difference comparison test and provide evidence that there is significant difference between the three age groups($\Delta\chi2$ /Δdf = 1.49, p < .05), suggesting significant moderating effects of age. The annexure-2 shows the results of multi-group comparison test for two models. The derived values of CFI in both models are 0.981, 0.943 respectively. All these values are above 0.90, hence fall in the acceptable range. This study derived RMSEA as 0.041 and 0.039, which is in good agreement with the ranges of values reported by Hair et al. (2010) and Byrne (2001).

It is evident from the annexure-3 that the p-value of H_{11} hypothesis is 0.00 which means that H_{11} is not rejected. This further means that forms of sustainability fashion products are positively associated with the behavioral intention of the customers towards sustainable products. However, a deeper analysis of data (annexure-4) shows that there is no association of forms of sustainability with the behavioral intention among Generation X. This means, people of these generation are not concerned about the forms of sustainability and always prefer new products. However, an association is observed by Generation Y and Z with the behavioral intention. These groups were found to be most aware about sustainable fashion and hence both branded and non-branded fashion can aim their marketing strategies towards them by giving authenticated information about the sustainability composition. The result of multi-group analysis shows that the effect of form of sustainable fashion products on behavioural intention is not considered significant (p-value>0.05) by generation X, had relatively higher strength in the generation Y than the generation Z (βGenY = 0.374, p-value= <0.05; βGenZ = 0.283, p-value<0.05). This means that the different forms of sustainability (Recycle, Upscale, Vegan and re-commerce) have more association in perception of generation Y than Generation Z. However, the mean

value related to re-commerce is high for generation Z in comparison to generation Y. This further means that the generation Z is the largest believer of Re-Commerce which gives us the idea of making pre-loved clothes a business model for the fashion houses targeting on Generation Z. Recycling and upcycling are also supported by smaller production runs that allows for more customization and personalization, thereby reducing waste.

The hypothesis H_{12} was rejected because the p-value is greater than 0.05. This further means that the accessibility of brands was not found to be the major factor associated with the behavioural intention related to sustainable products. All the generations have the similar type of experience (Annexure-4) because this factor is insignificant. This means that lot of branded and non-branded sustainable products are available in both online and offline stores. This further means that organizations have ensured that sustainable fashion is made readily available and accessible through popular shopping websites, malls and factory outlets.

The H_{13} hypothesis is not rejected because the p-value is less than 0.05. The result of multi-group analysis shows that the effect of usefulness of sustainable fashion products on behavioural intention does not have positive association (p-value>0.05) in perception of generation X. Generation Y and Z considers a positive association, however the factor has relatively higher strength in the generation Y than the generation Z (βGenY = 0.602, p-value= <0.05; βGenZ = 0.541, p-value<0.05). This means that when Generation Y and Z understand that the goods, they've purchased are sustainable, they become satisfied and recommend to others. The future of sustainable fashion looks good because consumers are becoming more aware of it and realizing its usefulness. The comfort parameter is ranked the highest for Generation Z and they are the most environmentally aware. They are ready to pay more if a particular clothing is sustainable. The reason might be that the fashion sustainable products are also designed by designers and generation Y and Z believes more in designer products. According to Kaikobad et al. (2015), designers are incorporating sustainable practices into modern clothing, using eco-friendly materials and socially accountable production processes. Celebrities like Bono, Stella McCartney, Edun show, and Portland Fashion Week have shown interest in sustainable fashion, with celebrities like Natalie Portman, Cameron Diaz, and Selma Hayek associated with sustainable fashion. However, some buyers felt that sustainable apparel lacks stylish and fashionable options. Many sustainable fashion firms are offering trendy, eco-friendly clothes, shifting this attitude. It will be good to have influencers also associated with the usefulness of fashion sustainable products. Leveraging the purchasing power of Instagram influencers, the Fashion Revolution Organization and Patrick Kohl are striving for the Influencer Revolution by calling for different production standards and transparency (Gelmetti et al., 2021, Gazzola et al. 2020).

The p-value of hypothesis H_{14} is less than 0.05, which means that raw material is positively associated with the behavioural intention related to fashion sustainability products. The result of multi-group analysis shows that raw material of sustainable fashion products does not have positive association with the behavioural intention in perception of generation X and Z (p-value>0.05) and generation Y considers the association between the raw material and behavioural intention (Annexure-4). This further means that generation X and Z are not concerned about how the raw material is grown or produced. Generation Y have a better knowledge about the raw materials and hence are concerned about the raw material used in the manufacturing process. Generation X also has a good knowledge about the raw materials but they care about brands and are not concerned about the sustainable products. Hence, the behavioural intention of Generation X is not associated with the raw material. Pero et al. (2020)

suggested that the affluent members of Generation Z and Millennials are curious about the origins of fashion items and the caliber of the materials used. To make sustainable fashion appeal more to Generation X and Z, awareness is crucial. Brands are tackling this problem by extending their sustainability initiatives to all their products. For instance, Levi's introduced its "Waterless" collection, which uses much less water in its manufacturing process and is priced similarly to the company's other items.

CONCLUSION AND SUGGESTIONS

The findings of the research, taken as a whole, highlight the significance of sustainability in the fashion sector and its potential to produce commercial value for companies by luring in new customers, fostering brand loyalty, and maintaining their position as market competitors.

The results indicate that behavioral intention for sustainable fashion products of Generation X was not influenced by the different characteristics of sustainable fashion products. It seems that they have very less awareness about sustainable products, and they are more concerned about the brands and the quality instead of the term sustainable products. These respondents spend their money on clothes of high quality. The frequency for purchasing clothes is the lowest and they prefer more transparency. These people care more about the brand rather than the process and raw material quality of the sustainable clothes. Insights regarding what was stopping from buying sustainable fashion was that the respondents lack awareness regarding sustainable fashion, price and margins are perceived to be higher for sustainable clothing and there is lack of authenticate brand options for sustainable clothing. Hence, creating a better brand image might be the key to make this segment profitable.

A new consumer demographic might be attracted to a business that prioritizes sustainability in raw material and offers clothing that is kind to the environment and socially conscious, which can help the business achieve a competitive advantage in the market. But for making them have a change of mind, large marketing efforts would be needed. but if they can be converted, it would be very profitable business for sustainable fashion brands. Brands can enter the domain of sustainable fashion by introducing their clothing lines with populous sustainable materials like organic cotton, khadi, linen, and recycled polyester. For brands to market sustainable fashion, they must focus on slow fashion and virtual dressing. This generation may study and support sustainable brands that correspond with their values Annexure Tables 1-4.

Annexure Table 1 MODEL STATISTICS						
Basic Model	**χ^2**	**df**	**RMSEA**	**CFI**	**χ^2 /df**	**p-value**
	175.77	66	0.041	0.981	2.66	0.000

Annexure Table 2 AGE AS MODERATING VARIABLE FOR MODEL						
Moderating Variable	**Models**	**χ^2**	**df**	**RMSEA**	**CFI**	**χ^2 /df**	**p-value**
AGE	Unconstrained model	295.211	198	0.039	0.943	1.491	0.000

Annexure Table 3 HYPOTHESIS TESTING				
Hypothesis	Statement	β Coefficient	p-value	Result
H_{11}	Forms of Sustainability Fashion→ Behavioral Intention	0.50	0.00	Supported
H_{12}	Accessibility → Behavioral Intention	0.06	0.426	Not Supported
H_{13}	Usefulness→ Behavioral Intention	0.34	0.00	Supported
H_{14}	Raw Material → Behavioral Intention	0.04	0.016	Supported

Annexure Table 4 PERCEPTION OF DIFFERENT GENERATIONS ON FASHION SUSTAINABLE PRODUCTS								
Constrained paths	Basic Model		Moderating Model-AGE					
			Generation X		Generation Y		Generation Z	
	B	p-value	β	p-value	β	p-value	B	p-value
Forms of Sustainable Fashion→ Behavioral Intention	0.50	0.00	0.369	0.157	0.374	0.039	0.283	0.000
Accessibility→ Behavioral Intention	0.067	0.426	0.275	0.955	0.095	0.792	0.026	0.799
Usefulness→ Behavioral Intention	0.34	0.00	0.593	0.076	0.602	0.000	0.541	0.000
Raw Material→ Behavioral Intention	0.04	0.016	0.301	0.322	0.098	0.004	0.021	0.102

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