The Influence of Green Marketing in Clothing Products on the Buying Habits of Teenage Girls

Kathleen Maddux[1] and Susan Vaughan[1#]

[1]H. B. Plant High School
[#]Advisor

ABSTRACT

Green Marketing is a strategic marketing approach that an increasing number of companies are using to attract consumers. Consequently, it has led to the widespread dishonest use of such marketing, known as greenwashing. The goal of this study was to fill the knowledge gap on the relationship between green marketing and consumption behavior within fashion, specifically pertaining to teenage girls. Thus, the results will show the extent that the issue of greenwashing impacts female adolescent consumers. A mixed method approach was utilized consisting of a content analysis on the websites of five clothing brands and an online experimental shopping simulation. The content analysis was conducted under coding guidelines which split the green marketing into three different categories: product, brand, and renewal. The qualitative data from the content analysis was used to create the shopping simulation with the three forms of green marketing and no green marketing included. A post-test survey at the end of the experiment addressed confounding variables and provided further insights. A One-Way ANOVA Statistical Analysis was applied to the results of the shopping simulation and found no statistically significant relationship between green marketing and the buying habits of teenage girls. However, while not statistically significant, product green marketing had a notably higher influence than the other three categories, giving implications for brands and future research. Further insights from the posttest survey were notable in that only about 25% of teenage girls were aware of the term greenwashing, proving its deceptiveness among a relevant demographic in fashion.

Introduction

Within Western culture, past scholars have generally viewed the area of fashion as a "frivolous or trivial concern" due to the outdated and narrow understanding that it is simply a "feminine" affair (King & Clement, 2012, p. 95). However, fashion "encompasses and informs" numerous aspects of society including business, culture, technology, sustainability, etc., and can thus be considered "the ultimate interdisciplinary subject" (King and Clement, 2012, p. 96). Indeed, the fashion industry is a massive player in the global economy—accounting for an annual "$1.2 trillion" as "80 billion pieces of new clothing are purchased each year" (Bick et al., 2018, p. 1). Accompanying these huge economic implications are the detrimental environmental impacts that the fashion industry produces.

Industrialization and increased use of outsourced labor among Western countries has facilitated a high consumer culture, and specifically within fashion, a newly emerging concept known as "fast fashion" (Rausch & Kopplin, 2020, p. 2). This "dominant business model" within the fashion industry produces cheap, trendy clothing, allowing a consumer to purchase large quantities of products, while also normalizing the perception of clothing as "disposable" (Bick et al., 2018, p. 1-2). In order to keep up with the growing demand for inexpensive clothing, fast fashion brands utilize harmful materials such as polyester—a synthetic fabric procured from petroleum—and cotton— "one of the most water and pesticide dependent crops" (Claudio, 2007, p. 450). Furthermore, the "disposable" nature of fast fashion's products results in large-scale textile waste: annually a whopping "3.8 billion pounds" of clothing in the United States is "sent to landfills as solid waste" (Bick et al., 2018, p. 1-2). To this end, many consumers have developed

concerns about the threats that the fashion industry poses to the environment and are thus more conscious of their purchasing behavior.

Historically, increased awareness and environmental concern formed in the 1970s and 1980s and established a "trend toward 'green' consumerism" throughout the United States that has continued to grow today (Rotman et al., 2020, p. 1). In response, companies have increasingly adopted sustainable initiatives and green marketing (GM)— "the promotion of ecologically friendly products" (Singh et al., 2022, p. 228)—as a strategic approach to attract consumers (Johnstone & Tan, 2015). Consequently, many brands have started to use fraudulent GM known as greenwashing for their economic benefit (Rausch & Kopplin, 2020; Johnstone & Tan, 2015; Rotman et al., 2020; Wu & Liu, 2022; Bick et al., 2018). More specifically, greenwashing can be defined as "the dishonest and misleading statements made by some companies about the green attributes of products or services" (Wu & Liu, 2022, p. 1). Due to the extensive use of this false advertising, many consumers who feel as though they have an environmental responsibility are likely to be deceived unknowingly (Wu & Liu, 2022). Therefore, it is important to discover the extent to which GM affects the buying habits of consumers to recognize the harm that greenwashing presents.

Literature Review

Search Strategies

The sources utilized in this research paper were found through credible online databases and categorized as peer-reviewed journal articles. Keywords used while researching include greenwashing, green marketing, sustainable fashion, and fast fashion.

Gap in the Research

As previously mentioned, scholarly research has only recently shown greater interest in exploring fashion due to modern recognition of its widespread interdisciplinary nature and significant implications to society (King & Clement, 2012). Therefore, while there are new and emerging studies surrounding sustainability, GM, and consumerism within fashion, there is a lack of comprehensive research studying the relationship between these topics.

Pre-existing research has shown that both the promotion of green consumption through green messaging (Chen et al., 2022) and the inclusion of "sustainable attributes" in products (Grazzini et al., 2021, p. 21) have an overall effective impact on purchasing behavior in fashion. Additionally, in their study researching influences on the consumerism of sustainable clothing, Theresa Rausch and Christopher Kopplin (2020) studied specific key factors including attitude, environmental knowledge and concern, greenwashing concern, and perceived economic and aesthetic risk. While this collective research valuably contributes to the discussion of sustainable fashion consumption, it fails to specifically address the impact of GM. Furthermore, pre-existing research that has studied GM has done so in a general sense rather than identifying fashion as the topic of interest (Wu & Liu, 2022; Rotman et al., 2020; Tuz & Sertyeşilışık, 2022). As a result, there is a "knowledge gap" in research on the relationship between GM and consumption behavior within fashion (Miles, 2017, p.3).

Moreover, there is a "population gap" pertaining to the participants that will be studied in this paper (Miles, 2017, p.4). I specifically studied teenage girls in high school while pre-existing research has failed to comprehensively study this demographic in relation to the research question. Furthermore, this specific age and gender is critically relevant to the topic. Historical trends convey the pattern that women in the past spent more time shopping than men (Nahl, 1940). While not as absolute, this trend still holds true in today's time, and in fact, Luz Claudio (2007) explains that the target consumers for fast fashion brands are primarily "young women" (p. 449). Additionally, compared to men, women in general have "demonstrated a greater conscience" towards environmental problems (Johnstone & Tan, 2015, p. 324) and a greater priority to purchase green products (Tuz & Sertyeşilışık, 2022). Moreover, consumers

from younger generations, such as Millennials or Gen Z-ers, are more inclined to purchase sustainable products, even at the expense of loftier prices (Rotman et al., 2020). Hence, both the gender and generational age of teenage girls make them an exceptionally pertinent demographic to study.

Therefore, the guiding research question proposed for the current study is: To what extent does online GM of clothing products influence the buying habits of teenage girls?

Green Marketing

More thoroughly, GM can be defined as "the practice of development and promotion of products based on their actual or perceived environmental sustainability" (Škatarić et al., 2021, p. 22). The overarching definition includes "adjusting products, changing production processes, packaging, and advertising," however, the current study is specifically researching the online promotion of these attributes (Singh et al., 2022, p. 225). Moreover, GM is a complex and inconsistent form of advertising due to the undefined nature of terms used within it (Rotman et al., 2020). Indeed, words such as "eco-conscious, eco-friendly, ethical, green, and organic" are considered "interchangeable" (Rausch & Kopplin, 2020, p. 2).

The lack of clarity among these terms causes confusion among both companies and consumers. As a result, growing pressure from various organizations led to the creation of the "Guides for the Use of Environmental Marketing Claims," more commonly known as the "Green Guides" (GG) under the Federal Trade Commission (FTC) in 1992 (Rotman et al., 2020, p. 2). The most recent revision of the GG was 2012, and while it contains regulations outlining the criteria for appropriate environmental marketing claims, this document exists simply as "interpretive guidance" rather than "binding regulations" (Rotman et al., 2020, p. 3). Indeed, according to the GG, "marketers must ensure that all reasonable interpretations of their claims are truthful, not misleading, and supported by reasonable basis before they make the claims" (Federal Trade Commission, 2012, p. 62125). However, a lack of explicit enforcement has facilitated the widespread prevalence of greenwashing. This past December, the FTC published a statement requesting "public comment on potential updates and changes" to revise the GG with the purpose of increasing its relevance and effectiveness. Scholars have recognized the importance of a revision, however, they also argue that establishing the GG as legally binding must be a priority in order to combat greenwashing (Rotman et al., 2020; Helsel, 2021).

Pertaining to the topic of GM, pre-existing research lends valuable insights and implications to the current study. For instance, researchers have found that GM within products other than clothing has had positive impacts on purchase intention (Chen et al., 2022). In another study, Lanmeng Wu and Ziyang Liu (2022) utilized a questionnaire survey where they found that "green marketing has a significant impact on brand image" and thus brand trust, which is essential for brands to accumulate loyal consumers (p. 4). They categorized two different types of GM: spontaneous, where brands "actively promote environmental protection activities," and coercive, essentially synonymous but the brand is "under the supervision of the industry and government" (Wu & Liu, 2022, p. 3). Their results found that spontaneous GM had a positive effect on brand image while coercive GM had a negative one, offering two differing perspectives (Wu & Liu, 2022).

Researchers Ahmet Tuz and Begüm Sertyeşilışık (2022) also studied the area of GM and the relationship of green product awareness (GPA) and green product intention (GPI) among consumers. A questionnaire consisting of international participants was utilized, and it first found that "GPA has a significant impact on GPI," therefore, "green marketing has a significant impact on green consumerism" (Tuz & Sertyeşilışık, 2022, p. 64 & 74). More specifically, their research found that effective GM to increase green purchase intention comprised of "product packages which include the green contents, advertisement of health and safety advantages, existence of green/sustainability certifications, [and] environment-friendliness of the product" (Tuz & Sertyeşilışık, 2022, p. 75).

Greenwashing

While GM theoretically represents progress towards a more sustainable future, a threatening consequence of it is greenwashing. Indeed, by 2010, a study conducted through the GM firm TerraChoice found that "95%" of the products they had analyzed with sustainable claims were greenwashing (Helsel, 2021, p. 15). As discussed previously, both the undefined terms within green marketing and a lack of binding regulations under the government have facilitated the prevalence of greenwashing in the fashion industry. Brands are greenwashing for the purpose of attracting consumers without truly committing to sustainable methods, however this strategy may prove to be counterintuitive. Pre-existing research shows that greenwashing has become a detrimental factor to sustainable fashion and has decreased consumer purchase intention of green products (Wu & Liu, 2022; Rotman et al., 2020; Johnstone & Tan, 2015; Rausch & Kopplin, 2020).

Lameng Wu and Ziyang Liu (2022) found that "as the level of greenwashing becomes higher, the influence of green marketing on brand trust gradually decreases" (p. 7). When brand trust decreases, a consumer will be less likely to purchase products from certain brands (Wu & Liu, 2022). Likewise, as the pervasiveness of greenwashing continues to grow, consumers are left feeling "confused, dissatisfied, and disloyal" which may further lead them to "avoid products that are marketed as 'green'" (Rotman et al., 2020, p. 6). Both findings are further reinforced by Micael-Lee Johnstone and Lay Peng Tan (2015) when they cite that "greenwash is negatively related to green trust," thus "[hindering] sustainable progress" and a reason for why some consumers choose against "purchasing green products" (p. 321). Their study utilized seven focus groups consisting of 51 participants aged between 19 and 70 to understand the reasons why many consumers fail to consistently purchase "green" products even though they express environmental concerns (Johnstone & Tan, 2015). Their results found that "consumer mistrust" is a reason why "some consumers avoid purchasing green products," thus highlighting the growing obstructive effects of greenwashing (Johnstone & Tan, 2015, p. 321).

Previously addressed in the gap, Theresa Rausch and Christopher Kopplin (2020) utilized a questionnaire in their study researching factors influencing a consumer's decision to purchase green products. One of the main factors they studied was the concern of greenwashing. Indeed, their results indicate that greenwashing concerns negatively "[moderated] the relation between attitude and purchase intention" (p. 20). Therefore, the collective research suggests the long-term counter-productiveness of greenwashing, and the harmful effect it has on both companies and consumers that are striving to make genuine efforts towards sustainable practices.

Hypothesis

The relevance of this demographic to the topic as well as pre-existing research, which has found the significance of green marketing on purchase behavior in a general sense, has led to the formation of my hypothesis. I hypothesize that, among teenage girls, the likelihood of purchasing a clothing product will increase with the presence of GM.

Research Design and Methodology

Study Design

The current study plans to explore the extent that online GM within shopping brands influences the buying habits of teenage girls regarding clothing products. The goal of this study is to find whether teenage girls are more prone to purchasing clothing products with GM present rather than those without. Implications from the results will convey the extent that greenwashing impacts female adolescent consumers.

A two-part, mixed method was conducted, allowing for a comprehensive research approach to distinguish different forms of online GM in fashion brands, and then use this research to study the effect of the marketing on

participants. More specifically, I utilized an "exploratory design," where qualitative data gathered from a content analysis was transferred to an experimental study with quantitative findings (Leedy & Ormrod, 2015, p. 313)

First, a content analysis was conducted on the online websites of five clothing brands. By conducting a content analysis, I was able to categorize the GM present into three main categories: product, brand, and renewal. Each category was then studied with established coding guidelines. Similarly, Andreas Strebinger and Alexander Rusetski (2016) administered a content analysis on the websites of 15 luxury fashion brands to study the presence of geographical references. Furthermore, like my research, they determined classifications under three different types of geo-referencing (Strebinger & Rusetski, 2016). Additionally, Yao Tingting et al. (2016) conducted a content analysis on websites selling e-cigarettes with the purpose of discovering marketing claims used. While the product studied is different from the current paper, the purpose of the content analysis had the same goal: to analyze the marketing strategies present on multiple retail websites.

Conducting a content analysis was crucial to the second part of the methodology, the experimental shopping simulation. I created an online shopping experience where the participant is presented with products to choose from. GM was included throughout the products using qualitative data from the content analysis. Accordingly, the experiment allowed me to analyze the frequency a certain GM category was chosen. Moreover, the experimental design is more representative of a consumer's purchasing decision than a questionnaire. Rausch and Kopplin (2020) utilized a survey to research factors that influence green purchasing decision of clothing, which proved limiting as it failed to consider participants who did not frequently shop. Indeed, the study explained that "most participants indicated to buy one or two garments…or even less than one garment per month" (Rausch & Kopplin, 2020, p. 14). The experimental design is a real-time experience, actively exposing participants to GM and therefore, it more effectively addresses factors that would prove limiting in a survey. However, a post-test survey was still included in order to address confounding variables and provide further insights to the research.
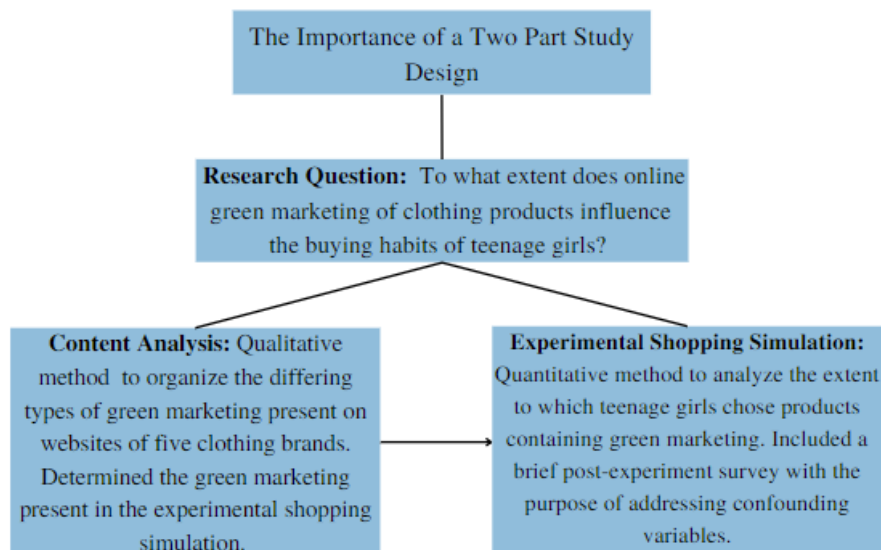

Figure 1. The Two-Part Study Design

Subjects

Content Analysis

The subjects for the content analysis were the websites of five different clothing brands: Zara, Princess Polly, H&M, Pacsun, and Urban Outfitters. These brands were chosen as they promote GM, yet are considered fast fashion, suggesting the high probability of greenwashing practices. In fact, both H&M and Zara, "two leading global" fast fashion retailers (López et al., 2022, p. 690), have been proven to use greenwashing techniques "to appeal and deceive" the consumer (Mysirli & Axarli, 2021, p. 97). While the researcher is unable to credibly verify that the other three brands are greenwashing, "the truth about fast-fashion production and its levels of pollution in general" are contradictory with "claims of sustainability," as cited by Thessalia Mysirli and Dimitra Axarli (2021, p. 98). Furthermore, it was important to select popular brands among teenage girls to accurately represent the GM they are exposed to in real life. The brands selected are frequently mentioned on trendy fashion blogs for teenage girls, and all five were included on *College Fashion*, a fashion blog written by female college students, a demographic invaluably close to the one of this study (Tzamaras, 2023).

Experimental Shopping Simulation

The subjects for the shopping simulation experimental design were high school girls in Hillsborough County. Subjects participated via a link to the online experiment, which was dispersed through social media, flyers with an included QR code, and sent out to 29 public high schools.

Research Instruments

Content Analysis

In the content analysis, I was able to categorize GM found on the websites into three main themes "product," "brand," and "renewal." Under the theme "product," a clothing product itself was promoted in some way as "green." Under the theme "brand," green initiatives were promoted in a general sense, rather than specificity to a product. Under the theme "renewal," each brand studied had some type of repurposing program with the goal of reducing waste. Table 1 further outlines the coding guidelines for the three categories.

Table 1. Coding Guidelines for the Three Main Themes

Category of Green Marketing	Coding Guidelines
Product	Labels
	Certifications
	Alternative fabrics
	Recycled
Brand	Mission statement
	Partners
	Certifications
	"Care" description
	Initiatives
Renewal	Resale
	Return
	Remnants

Experimental Shopping Simulation

The shopping simulation experiment and post-test questionnaire were created using Typeform. The experimental portion included 10 questions, and each presented the participant with four options of similar-looking products. Three of the four options included GM, based on qualitative results from the content analysis, while one did not. The participant was simply asked to select a product to "purchase." Images for the products were taken from H&M, Old Navy, and American Eagle. The latter two were used instead of brands analyzed in the content analysis as their products include images without models. Figure 2 shows an example question of the experimental design (see Appendix A for all ten experimental questions).
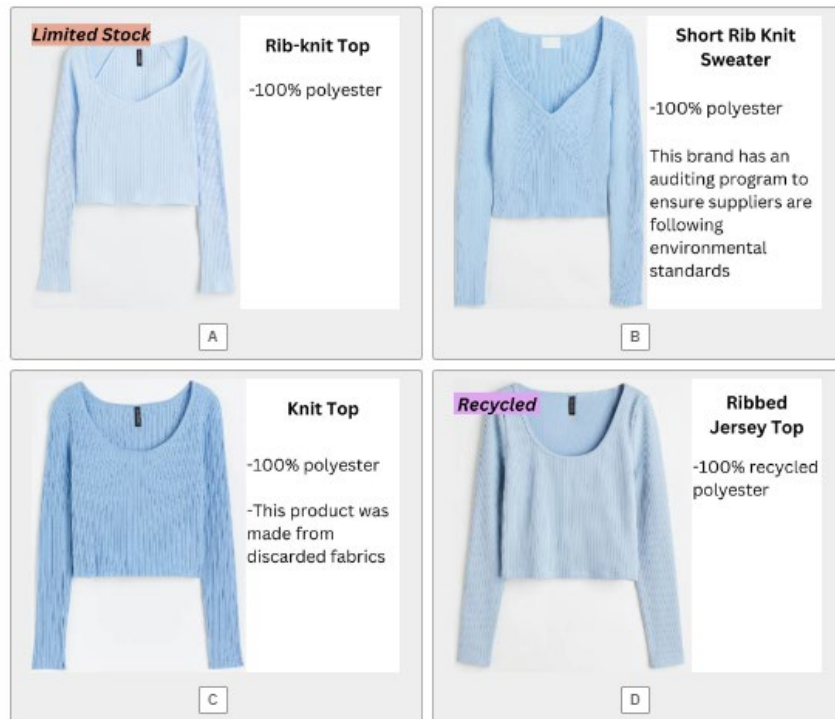

Figure 2. Shopping Simulation Example Question

After the shopping simulation, the participant answered a post-test questionnaire to better address confounding variables and provide valuable insights. The questions were reviewed and approved by the Institutional Review Board (IRB) and are shown in Table 2.

Table 2. Post-Experimental Questions

Question	Answer Choices
1. Rate how strongly you feel these attributes impacted your "purchasing" decision in the experiment. - Style - Color - Sustainability - Other	Participants had the choice to select "strongly disagree," "disagree," "agree," or "strongly agree" for each attribute listed.
2. If you said there were "other" attributes that impacted your purchase decision, please list below.	Participants had a text box they could type answers into.
3. In real life, rate how strongly these attributes impact your purchasing decision of clothing products. - Price - Style - Brand - Sustainability - Other	Participants had the choice to select "strongly disagree," "disagree," "agree," or "strongly agree" for each attribute listed.
4. If you said there were "other" attributes that impact your purchasing decisions, please list below.	Participants had a text box they could type answers into.
5. On a scale of 0-10, how important is sustainability to you when purchasing clothing?	Participants were asked to select a number from 0-10.
6. On a scale of 0-10, how important is sustainability to you in general?	Participants were asked to select a number from 0-10.
7. Are you aware of the term "greenwashing?"	Participants were given the option between "yes" or "no"

Procedures

Content Analysis

I analyzed the first 20 different clothing products of each brand under the "All Clothing" subpage for women's clothing, with the exception of Zara, which lacked this subpage and therefore was analyzed under the subpage "New." This way, I was presented with a methodological and varietal array of women's clothing products to analyze. I used the coding guidelines represented in Table 1 to analyze the products as objectively as possible and gather qualitative data for the experiment. Furthermore, I considered the renewal programs made available by each brand, and the coding guideline(s) they qualified as.

Experimental Shopping Simulation

The experiment was online and dispersed through a link, proving beneficial and effective to finding results for this study. In fact, Laura Grazzini and her colleagues (2021) cite that "online experiments result in a better response rate" and "protect the confidentiality of the respondents" (p. 14). Furthermore, the current paper is studying GM present on websites, and therefore an online experiment more authentically represents these websites. Teachers from schools in Hillsborough County were emailed a flyer with a QR code as well as the link to the experiment, and were asked to disperse this to their students. Participants were both informed about the experiment and ensured anonymity through the consent form. To eliminate ethical issues, this study was approved by the IRB.

Delimitations

To narrow the participant pool, I studied teenage girls from high schools in Hillsborough County, excluding other demographics from the research. Furthermore, I analyzed fast fashion brands that promote GM. Consequently, both luxury brands and fashion brands that do not promote GM are disregarded in the current study. Furthermore, the current study is solely researching GM found in online retail websites rather than GM present in brick-and-mortar stores. Finally, some pre-existing scholarly research includes the promotion of social initiatives in their definition of green marketing (Nilashi et al., 2020). By contrast, the current study is excluding the social aspect of sustainability and solely researching with an environmental focus.

Limitations

Though I created a coding guidelines sheet to establish my results for the content analysis, limitations arise from this method as human bias can interfere with objectivity, no matter how much care a researcher takes. Additionally, as the experiment was dispersed electronically, I was not physically monitoring participants, and therefore, it cannot be ensured that participants are accurately reporting their demographic.

Results and Analysis

Content Analysis

The qualitative results of the content analysis were transferred and used as GM in the shopping simulation. Qualitative results were categorized by the three main themes: product, brand, and renewal. Examples of results and the categories they fall under are included in Table 3. To see the complete list of results, refer to Appendix B. Examples I used in the shopping simulation that are shown in the table under the "product category" include labels such as "lower impact" and "PETA approved." Additionally, under the "brand" category, I included summarized statements such as "this brand is committed to greater transparency" and "caring for your clothes is caring for the environment: to lengthen the life of this garment, wash it inside out." Furthermore, under the "renewal" category, I included the different types of renewal programs present in the brands studied: "this product was recirculated as secondhand," "this product was made from discarded fabrics," etc.

Experimental Shopping Simulation

The online experiment obtained 374 participants, however, after further examination, 355 participants qualified under the demographic restrictions. Not every participant responded to each question and therefore the data overall is represented by an average of 351 participants. In order to address this potential limitation, data was analyzed as percentages.

Table 3. Result Examples of the Three Main Themes

Category of Green Marketing	Coding Guidelines	Result Examples
Product	Labels	"Lower impact" "Vegan"
	Certifications	"LENZING™ ECOVERO™" "PETA approved"
	Alternative fabrics	"Viscose" "Polyurethane"
	Recycled	"Recyclable" "Recycled polyester 80%"
Brand	Mission statement	"We believe that greater transparency will help lead the change towards a more sustainable future. As a step in this long-term commitment, we're sharing how and where our products are made wherever possible."
	Partners	"We only work with partners who share our respect for people and the environment, and who are willing to work with us to improve their practices."
	Certifications	"Global Recycled Standard (GRS)" "Recycled Content Standard (RCS)"
	"Care" description	"Lower temperature washes and delicate spin cycles are gentler on garment, helping to maintain the color, shape and structure of the fabric. At the same time it reduces energy consumption that is used in care processes."
	Initiatives	"Happy returns"
Renewal	Resale	Program offered by brand that allows consumers to resell their clothing
	Return	Program offered by brand that allows consumers to return their clothing to be upcycled/repurposed/remade by the brand
	Remnants	When a brand creates garments from discarded fabrics

One-Way ANOVA Statistical Analysis

A one-way analysis of variance (ANOVA) was applied to compare the means values between the four factors: product, brand, renewal, and no GM. The ANOVA test is a standard statistical analysis for experimental research designs in order to "determine whether or not there is a statistically significant difference between the means of three or more independent groups" (Bobbitt, 2021). Similarly, to analyze their first hypothesis, Grazzini et al. (2021) utilized a two-way ANOVA test (as they were studying two independent variables rather than one) and found purchasing decision and the presence of sustainable attributes had a statistically direct relationship while product category, fast fashion vs luxury products, did not have statistical influence. Similarly, the current research study is attempting to find whether there is statistical significance between GM and purchase behavior of teenage girls.

The calculation involves the use of a null hypothesis, which is a "hypothesis postulating that a statistically significant result is due entirely to chance" (Leedy & Ormrod, 2015, p. 370). In order to show statistical significance where at least one of the population means is different from the others, the data must reject the null hypothesis (Bobbitt, 2021). A researcher knows that this has occurred when the p-value is less than 0.05, which would further require them to perform a post hoc test in order to discern which population mean was significant (Bobbitt, 2021)

Figure 3 outlines the calculations of an ANOVA between the four different categories (product, brand, renewal, and no GM), and as the p-value is greater than 0.05, the data has failed to reject the null hypothesis, and a post-hoc test was not conducted. As a result, I am able to conclude that not one category had a statistically significant impact on the buying decision of a teenage girl.

Source	SS	df	MS	F	p
Treatment	899.6	3	299.9	2.224	0.10741
Error	3775.1	28	134.8		
Total	4674.6	31			

Figure 3. ANOVA Statistical Analysis on all Four Factors. *Note. SS* indicates the sum of squares, *df* indicates degrees of freedom, *MS* indicates the mean squares, *F* indicates the F statistic, and *p* indicates the p-value.

While this data may not be statistically significant, it can still provide relevant implications to the scholarly research field. As shown in Figure 4, the box plot clearly outlines a higher mean value under the product category, represented by the X, over all three other categories. Additionally, the data represented in the product category shows greater consistency of choice among participants as its box plot is symmetrical while the other three are somewhat skewed. Therefore, as this data comes simply from eight questions, future research should further analyze product green marketing more extensively in order to determine whether it would be statistically significant in a greater context.
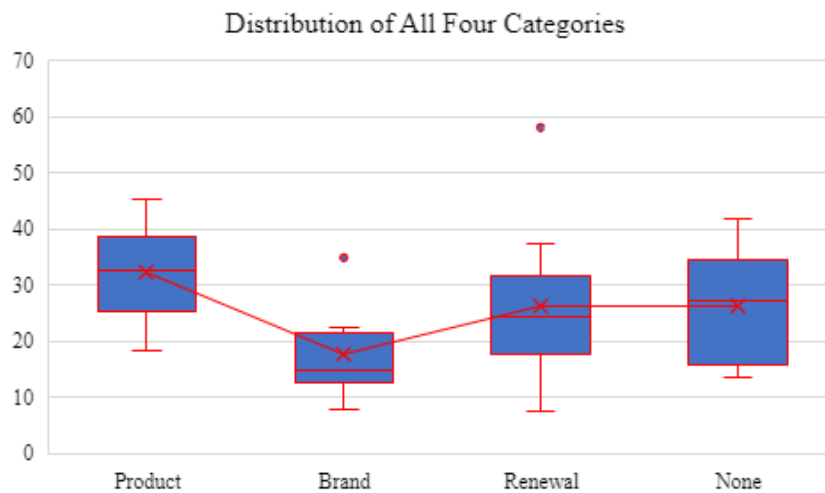

Figure 4. Responses to Each Category in Percentages

Confounding Variables

In the Shopping Simulation

Participants were directed to post-test questions that addressed confounding variables immediately after the online shopping experiment. The questions asked participants the extent other factors influenced their choices during the

experiment with the options "strongly disagree," "disagree," "agree," and "strongly agree." The percentage of participants who reported "strongly agree" for each factor are shown in Figure 5. The first question asked participants to rate how strongly they felt that "style," "color," "sustainability," and "other" impacted their decisions in the experiment. 57.6% of participants selected "strongly agree" for style, making it the highest factor in the participants choices. On the other hand, 26.8% of participants selected "strongly agree" for color and 13.5% selected it for sustainability. Afterwards, there was an option for participants to type a response to what "other" factors they felt impacted their decision. The most prevailing "other" factor was the material of the clothing. However, it is important to note that only 9.2% of participants selected "strongly agree" that there was an "other" factor influencing their choice. Therefore, it can be concluded that variables such as style and color were the most prevalent confounding variables, yielding a limitation of the results that need to be considered.
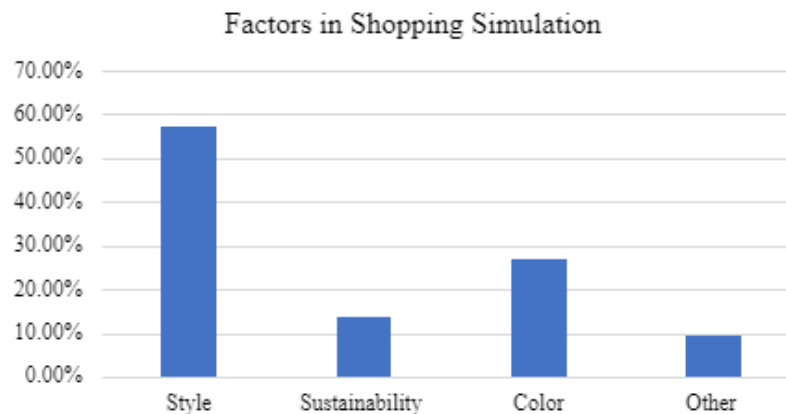

Figure 5. Percent of Participants who Reported "Strongly Agree" for Experimental Factors

In Real Life

A question with the same structure was included immediately after the one above, with results shown in Figure 6. However, it addressed factors that might impact a purchasing decision in real life. A major limitation of my experiment was that I chose not to include price in order to avoid overcomplicating the research design. As a result, it was essential to include a question addressing this limitation and how strongly a participant feels factors such as "price" and "brand" impact their purchasing decisions. Results show that price is a relatively high factor in purchasing decision with 57.1% of participants who reported "strongly agree." On the other hand, only 15.7% of participants selected "brand" under this category. Furthermore, style and sustainability remained relatively consistent with the experiment as 60.8% participants reported "strongly agree" under style and 11.8% under sustainability. The full answers to both questions can be found in Appendix C and coded results from the two questions addressing "other" factors in Appendix D.
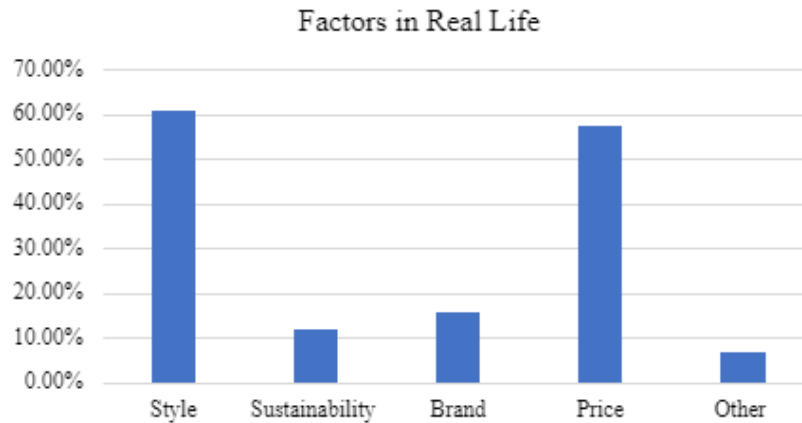
Figure 6. Percent of Participants who Reported "Strongly Agree" Real-Life Factors

Additional Insights

Sustainability

The next two questions asked participants to rate on a scale of 0-10 the importance sustainability is to them when *purchasing clothing* and then the importance sustainability is to them *in general*. Aligning with pre-existing research, a relatively high number of participants reported that sustainability was important to them, yet this number was lower when it came to actually purchasing clothing products. Indeed, 16.6% rated a 10 for sustainability in general while only 6.8% of participants rated a 10 for sustainability when purchasing clothing. To see full results, refer to Appendix E.

Greenwashing

The last post-test question provided major implications to the purpose of the study. It was a yes/no question that asked whether the participant was aware of the term "greenwashing." As shown in Figure 7, the majority of participants were unaware of the term with 74.7% reporting "no" and 25.3% reporting "yes." According to these results, approximately ¼ of the population of teenage girls is aware of what greenwashing is. Therefore, approximately ¾ of teenage girls are potentially being unknowingly deceived by GM claims, unaware of the issue.
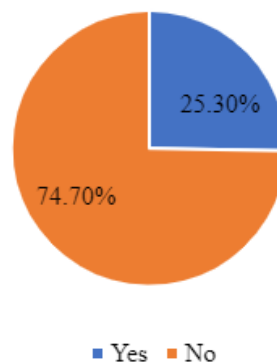

Figure 7. Responses to if Participants Were Aware of the Term "Greenwashing"

Conclusion

The goal of the current study was to discover the extent to which GM, and thus greenwashing, impacts the buying decisions of teenage girls.

Fulfillment of the Gap

This study strived to fill a knowledge and population gap in the research. No pre-existing research has studied green marketing in the context of fashion; instead, research has been done on both topics separately. Additionally, no study has researched teenage girls as its focal age demographic. In order to fill these gaps, the study design first evaluated GM on online websites and then transferred it into a shopping simulation, which was further dispersed to high school girls. After an ANOVA was conducted, the results of the study found that there is no statistically significant relationship between the four established categories (Product, Brand, Renewal, and None). However, the mean value of the product category was highest in comparison to the other three categories. Therefore, my research has provided new knowledge to the research field, in that while no category was statistically significant, product green marketing has a greater impact on purchasing behavior of teenage girls. My data then proved that greenwashing has little effect on teenage girls as a whole because in general, green marketing has little significance on their purchasing behavior.

Implications

The implications of the current study yield valuable insights for different aspects of society. My results found no statistical significance for any of the four categories (product, brand, renewal, and none). Brands with teenage girls as a major target age are spending large amounts of money to greenwash, yet these results show that GM has little economic advantage. As a result, these findings show the unnecessary use of greenwashing, and contrary to what these companies think, it is not increasing profits. On the flip side, though not statistically significant, product green marketing had a notably higher influence than the other three categories, and sustainable brands should use this to their benefit. If honest sustainable brands who use GM focus intentions in the product category, they may have greater success in reaching teenage female consumers. Furthermore, results from the post-test questions show that the most important factors influencing purchasing decision for teenage girls are style and price. As a result, honest brands should consider both factors to best attract this demographic of consumers. Finally, while results found that greenwashing has limited influence on teenage girls as a whole, there are still consumers in this age demographic that care about purchasing more sustainable clothing. As there was a majority of respondents selecting that they were unaware of the term greenwashing, about 75%, this issue needs to be brought to light. Most teenage girls are unaware of the prevalence of greenwashing in the fashion industry, leaving a harmful impact on environmentally conscious consumers. Awareness facilitates change, and these results show a greater need for awareness on the issue of greenwashing in order to combat its widespread prevalence.

Limitations

There were several limitations to this study. To start, I excluded two of the ten questions from the experimental results as these questions had an unequal representation of each green marketing category, and thus were not eligible for an accurate ANOVA test.

Additionally, I did not include price in the shopping simulation in order to avoid overcomplicating the variables. However, when addressing this in the post-test survey, about half of participants reported they "strongly agree" that price impacts their purchasing decisions, proving to be a significant variable.

Within the shopping simulation experiment, there are multiple confounding variables that have the potential to influence results and a participants decision making rather than GM, such as color, style, and material. After addressing these factors in the post-test questionnaire, results showed that style proved to be a significant confounding variable and had a high influence on purchasing decisions. Therefore, it is probable that some participants chose a product with GM simply because they liked that style the most, not because it included GM.

Areas for Future Research

Replication of the Current Study

In order to replicate the current study for further research, the coding guidelines I established for the content analysis can be used to study retail fast fashion websites. I studied the first twenty women's products on five websites including Zara, H&M, Princess Polly, Urban Outfitters, and Pacsun. Qualitative data from the content analysis was included in the experiment's products by designing through Canva. Appendix A shows the entirety of my shopping simulation, which can be used as reference to create another one through Typeform. Additionally, all post-test questions are given in the methodology and can be used to replicate this study. Finally, to analyze results, a one-way ANOVA test can be utilized.

Different Directions

Future research should more extensively study product green marketing and its effect on consumers to further determine its significance. Additionally, participants came from high schools across Hillsborough County, representing a diverse socioeconomic population. Future research could consider how GM impacts different socioeconomic groups among teenage girls. Additionally, future research could analyze how GM in luxury brands or honest sustainable brands impacts consumer habits, as the current study researched fast fashion brands with the assumption that they were greenwashing. This way, there can be more comprehensive research on how GM in the fashion industry as a whole impacts the buying habits of teenage girls.

References

Bick, R., Halsey, E., & Ekenga, C. C. (2018). The global environmental injustice of fast fashion. *Environmental Health: A Global Access Science Source*, *17*(1), 1-4. https://doi.org/10.1186/s12940-018-0433-7

Bobbitt, Z. (2021, December 21). One-Way ANOVA: Definition, Formula, and Example. *Statology*. https://www.statology.org/one-way-anova/

Chen, L., He, L., Yan, X., & Liu, C. (2022). Green Message Framing in Enhancing Sustainable Consumption Behavior of Fashion Based on the Cross-Theoretical Model. *Journal of Environmental & Public Health*, 1-14. https://doi.org/10.1155/2022/4038992

Claudio, L. (2007). Waste Couture: Environmental Impact of the Clothing Industry. *Environmental Health Perspectives, 115*(9), A448–A454. https://doi.org/10.1289/ehp.115-a449

Federal Trade Commission. (2012). Guides for the Use of Environmental Marketing Claims. *Federal Register*, *77*(197), 62122-62132. https://www.ftc.gov/sites/default/files/documents/federal_register_notices/guides-use-environmental-marketing-claims-green-guides/greenguidesfrn.pdf

Grazzini, L., Acuti, D., & Aiello, G. (2021). Solving the puzzle of sustainable fashion consumption: The role of consumers' implicit attitudes and perceived warmth. *Journal of Cleaner Production*, *287*, 1-32. https://doi.org/10.1016/j.jclepro.2020.125579

Helsel, S. (2021). The Truth Is Always in Style: Targeting Greenwashed Advertising in the Fashion Industry. *Sustainable Development Law & Policy*, *21*(2), 15–32. https://search.ebscohost.com/login.aspx?direct=true&db=asn&AN=156173711&site=ehost-live

Johnstone, M.-L., & Tan, L. P. (2015). Exploring the Gap Between Consumers' Green Rhetoric and Purchasing Behaviour. *Journal of Business Ethics*, *132*(2), 311–328. http://www.jstor.org/stable/24703542

King, L. M., & Clement, R. T. (2012). Style and Substance: Fashion in Twenty-First-Century Research Libraries. *Art Documentation: Journal of the Art Libraries Society of North America*, *31*(1), 93–107. https://doi.org/10.1086/664912

Leedy, P. D., Ormrod, J. E. (2015). Practical Research Planning and Design Eleventh Edition. *Pearson*, 1-389.

López, T., Riedler, T., Köhnen, H., & Fütterer, M. (2022). Digital value chain restructuring and labour process transformations in the fast-fashion sector: Evidence from the value chains of Zara & H&M. *Global Networks, 22*(4), 684–700. https://doi.org/10.1111/glob.12353

Miles, D. (2017). A Taxonomy of Research Gaps: Identifying and Defining the Seven Research Gaps. *Doctoral Student Workshop: Finding Research Gaps-Research Methods and Strategies, Dallas, Texas*, 1-10. https://www.researchgate.net/publication/319244623_ARTICLE_Research_Methods_and_Strategies_Workshop_A_Taxonomy_of_Research_Gaps_Identifying_and_Defining_the_Seven_Research_Gaps

Mysirli, T., & Axarli, D. (2021) Effects of Greenwashing on the Markets of the Western World. *HAPSc Policy Briefs Series, 2*(2), 95-101. https://doi.org/10.12681/hapscpbs.29496

Nahl, P. C. (1940). Variations in Buying Habits of Different Consumer Groups. *The Southwestern Social Science Quarterly*, *21*(2), 163–171. http://www.jstor.org/stable/42864966

Nilashi, M., Yadegaridehkordi, E., Samad, S., Mardani, A., Ahani, A., Aljojo, N., Razali, N. S., & Tajuddin, T. (2020). Decision to Adopt Neuromarketing Techniques for Sustainable Product Marketing: A Fuzzy Decision-Making Approach. Symmetry (20738994), 12(2), 305. https://doi.org/10.3390/sym12020305

Rausch, T., & Kopplin, C. (2020). Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing. *Journal of cleaner production,* 1-35. doi: 10.1016/j.jclepro.2020.123882

Rotman, R. M., Gossett, C. J., & Goldman, A. H. D. (2020). Greenwashing No More: The Case for Stronger Regulation of Environmental Marketing. *Administrative Law Review*, *72*(3), 1-14. https://link.gale.com/apps/doc/A636791769/GPS?u=brewste&sid=bookmarkGPS&xid=09448093

Singh, G., Prajapati, M., & Nihlani, A. (2022). A Review Paper on Development of Green Marketing. *Journal of Algebraic Statistics*, *13*(1), 225–230. https://search.ebscohost.com/login.aspx?direct=true&db=asn&AN=160017735&site=ehost-live

Škatarić, G., Vlahović, B., Užar, D., Spalevic, V., & Novićević, R. (2021). The Influence of Green Marketing on Consumer Environmental Awareness. *Agriculture & Forestry / Poljoprivreda i Sumarstvo*, *67*(2), 21–36. https://doi.org/10.17707/AgricultForest.67.2.02

Strebinger, A., & Rusetski, A. (2016). Prioritizing Geo-References: A Content Analysis of the Websites of Leading Global Luxury Fashion Brands. *Journal of Global Marketing 29*(5), 282-297. https://doi.org/10.1080/08911762.2016.1185562

Tingting Yao, Nan Jiang, Grana, R., Ling, P. M., & Glantz, S. A. (2016). A content analysis of electronic cigarette manufacturer websites in China. Tobacco Control, 25(2), 188–194. https://doi.org/10.1136/tobaccocontrol-2014-051840

Tuz, A., & Sertyeşilışık, B. (2022). An Investigation into the Green Marketing Effects on Green Consumerism. Journal of Applied & Theoretical Social Sciences, 4, 64–77. https://doi.org/10.37241/jatss.2022.57

Tzamaras, D. (2023, February 9). The Best Clothing Stores for Teens. *College Fashion.* https://www.collegefashion.net/shopping/clothing-stores-for-teens/

Wu, L., & Liu, Z. (2022). The Influence of Green Marketing on Brand Trust: The Mediation Role of Brand Image and the Moderation Effect of Greenwash. *Discrete Dynamics in Nature & Society*, 1–10. https://doi.org/10.1155/2022/6392172