The Impact of Social Media on Consumer Perceptions of
Fashion Sustainability and Ethics

Shifali Kerudi

ABSTRACT

Fast fashion is a business model by short production and distribution lead times to match supply with uncertain demand and highly fashionable product designs. The purpose of this study was to understand how consumers engage with topics of sustainability and fast fashion and interact with fashion brands via social media, specifically Twitter. This study also aimed to identify sustainability themes fashion brands highlight on their social media platforms and how these correlates to their overall sustainability and environmental performance, as well as how consumers discuss fashion brands on Twitter. Through a survey distributed to University of California Berkeley students, I determined that social media was the primary platform through which consumers engaged in topics of sustainability. "Sustainable fashion" was most often associated with words such as "long-lasting", "thrifting", and "expensive". The primary theme found via thematic coding of fashion brands Twitter accounts was providing a platform to other individuals, organizations, and initiatives focused on sustainability. No statistically significant correlations were found between the number of sustainability tweets, or tweets among specific themes, outputted by any brands. The sentiment analysis performed on consumer tweets revealed that consumer tweets were, on average, overwhelmingly positive. The findings of this study show that consumers cannot rely on brands' sustainability social media content to make judgements regarding brands' sustainability practices. Twitter may serve as a valuable platform for brands to perform crisis management and interact with consumers during times of critical or negative attention towards the brand.

KEYWORDS

INTRODUCTION

Fast fashion is a business model which offers consumer trendy clothing at universally affordable prices (Caro and Martínez-de-Albéniz 2015). This term has become synonymous with any large clothing retailer that lies below a certain price threshold and is able to quickly replenish and refresh their inventory (Caro and Martínez-de-Albéniz 2015). The system of fast fashion is characterized by (1) short production and distribution lead times to match supply with uncertain demand and (2) highly fashionable product designs (Cachon and Swinney 2011). Such a system has been developed in response to changes in the consumer lifestyle and the need to adapt to constantly changing fashion trends (Gabrielli et al. 2013). The current operating model of fast fashion has ultimately perpetuated recurring consumption and impulse purchasing, giving consumers a sense of urgency when purchasing clothing, with the average consumer in the USA purchasing a new item of clothing every 5.5 days (Niinimäki et al. 2020). As a result, the global consumption of fashion apparel has risen to 62 million tonnes per year and is estimated to reach 102 million tonnes by 2030 (Niinimäki et al. 2020). This industry relies on outsourcing most of its production and apparel disposal to low-middle income countries (LMICs), where the burden of production and industrial waste falls on under-resourced communities (Bick et al. 2018). Ultimately, the fast fashion industry accounts for more than 8-10% of global greenhouse gas emissions, 20% of global industrial water pollution, and 35% of oceanic microplastic pollution, making it a serious target for major environmental reform and public scrutiny (Niinimäki et al. 2020).

Sustainability is described as the third wave in consumerism, beginning with consumerism movements in the 1980s focused on green, socially responsible, and fair trade products (Shen et al. 2013) .From both the consumer and producer perspective, there are multiple forms of sustainability in fashion including custom made or made to order, secondhand purchasing, collaborative consumption, waste management, fair and ethically made, and sustainable production techniques (Khandual and Pradhan 2019). In the context of corporations, the rise in sustainability focus in the last three decades is evidenced by the signing of the United Nations Global Compact by over 13,000 corporations across 160 countries (Lozano 2019). As a result, a variety of tools, initiatives, and approaches (TIAs) have been developed to address issues of sustainability. Most popular amongst the corporate sector are corporate social responsibility (CSR)

and corporate sustainability (CS). While including a variety of dimensions, CSR most generally refers to "the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life at the workplace and workers' families as well as the local community and the society at large". CS is slightly different, referring to a framework to address sustainability challenges which focuses on the use of resource-efficient technologies, sustainability reporting schemes, and providing sustainable products, services, and product–service combinations (Lozano 2019). Despite generally positive attitudes towards sustainable products, studies find that consumers often do not end up purchasing sustainable products (Shen et al. 2013). This may be due to a feeling of lacking choice due to many garments being produced in developing countries or feeling unable to properly judge unethical behavior of manufacturers (Joergens 2006). To purchase ethically, consumers must not be inconvenienced and must also be convinced that their purchasing behavior can make a difference (Carrigan and Attala 2001).

To create a CSR engagement strategy which allows consumers to form positive associations with retailers, companies are increasingly using social media to communicate CSR commitments (Fernández et al. 2022.). Retailers such as Zara, H&M, and TopShop are using social networks like Pinterest, Twitter, and Snapchat as thermometers to gauge popularity of trends and expose consumers to new clothing items (Buzzo and Abreu 2019). As overall public concern for the environment rises, brands are seizing this market opportunity to take advantage of society's environmental distress and utilize environmental appeals in advertising (Sailer et al. 2022). Between 2006 and 2009, green advertising grew by almost 300% (Lyon and Montgomery 2013). Unfortunately, this has resulted in the practice of greenwashing, or intentionally misleading consumers about a firm's environmental initiatives or impacts (Nyilasy et al. 2014). Although greenwashing has become increasingly prevalent, the use of social media by external stakeholders, such as consumers, will make all forms of greenwashing less likely and make girls with green reputations less likely to promote their environmental success when they have mixed environmental records (Lyon and Montgomery 2013). Although there exists significant literature surrounding the origins of fast fashion and the active role that consumers play in using apparel to shape their lifestyle and adapt to quickly changing trends, there exists very little analysis on how certain dimensions of social media messaging can impact consumers' brand perception of fast fashion companies specifically. As new indices and rating systems have been developed by a variety of stakeholders like Remake, studies have yet to explore how higher versus lower rated

fashion retailers utilize social media and which dimensions of ESG and sustainability they tend to highlight.

   The central research question for this project is: How do the social media activity of publicly recognized sustainable fashion companies differ from fast fashion companies? The following three sub questions will be used to evaluate this question. The first sub question asks, how can social media content impact consumer perceptions of fashion companies? Based on the findings of Nyilasy et al. (2014), which saw highest brand attitudes and perceptions for companies with no green advertising, it is hypothesized that tweets highlighting sustainability and ESG content will not significantly impact consumer perception. Understanding how social media content can impact consumer perception will be done by surveying individuals with tweets across five different dimensions: (1) Traceability & Transparency, (2) Maker Well Being, (3) Environmental Sustainability, (4) Sustainable Raw Materials, (5) Leadership, Diversity, Inclusion. Individuals will also be surveyed regarding their engagement with issues in sustainability, as well as their sustainable consumption behaviors. The second sub question asks, which dimensions of ESG and sustainability do sustainable and fast fashion companies focus on in social media content? This analysis will be accomplished by using Twitter's publicly available API to scrape tweets from both sustainable and fast fashion retailers as dictated by scores from non-profit advocacy group Remake and coding tweets based on a word analysis. The third sub question asks, how do consumers use social media to talk about fashion companies? This will be accomplished by performing a sentiment analysis on tweets mentioning both sustainable and unsustainable brands.

RESEARCH FRAMEWORK

Background

The setting of fast fashion

The Global Fashion Retail Industry

   Fashion can be described as a temporary cyclical phenomenon adopted by consumers for a particular time and place, evolving with the product life cycle (Sproles 1981). The typical product

life cycle is as follows: introduction and adoption, increasing public acceptance and growth, mass conformity, and finally eventual decline and obsolescence (Sproles 1981). Early fashion theory identifies two main time frames for trend cycles, long run, and short run cycles, with short run cycles being most applicable to individual products rather than major styles (Sproles 1981). Short run cycles typically lasted anywhere from 5 to 10 years. The mid-1980s and prior were characterized by low-cost mass production of standardized apparel. However, retailers responded to increasing competition by switching to buyer-driven supply chains, developing alliances with suppliers in other markets, and differentiating their brands (Bhardwaj and Fairhurst 2010).

Suppliers faced increased pressure to decrease lead time and more rapidly respond to the market by expanding and refreshing their product ranges (Barnes and Lea-Greenwood 2006; Gabrielli et al. 2012). To increase product range within existing seasons, retailers began adding anywhere from 3 to 5 additional mid-seasons in a single fashion calendar (Bhardwaj and Fairhurst 2010). In the 1990s, quick response (QR) and just-in-time techniques were used to restructure the industry because of retailers' failures to quickly translate trends to market and the subsequent adverse impacts on profit (Bhardwaj and Fairhurst 2010). Quick response strategies allowed firms to reduce supply-demand mismatches by providing them with the option to procure inventory after updating current demand information (Cachon and Swinney 2011). Ultimately, QR strategy involves postponing all risky decisions until ample evidence shows that market demand is present (Caro and Martinez-de-Albéniz 2015).

The upheaval of the traditional fashion industry and the transition to QR, lean retailing systems, and consumer-driven supply chains has given rise to an entirely new industry altogether. Current fashion markets exhibit the following characteristics: short life cycles, high volatility, low predictability, and high impulse purchasing (Christopher et al. 2004). As such, fast fashion, a business model offering the perception of fashionable clothing at affordable prices, has emerged (Caro and Martinez-de-Albéniz 2015). As described by Cachon and Swinney (2011), this business model is reliant on two essential elements: (1) short time gaps between production and distribution (quick response techniques), and (2) trendy product designs (enhanced design techniques). Sophisticated demand prediction systems to facilitate inventory replenishment, localized production, and expedited distribution allow for short lead times, while fashionable product designs are achieved via closely monitoring consumer and industry trends (Cachon and Swinney 2011). For example, global fashion giant Zara can respond to demand and constantly refresh its

product range with anywhere from 20 or more seasons per year using such techniques (Christopher et al. 2004; Cachon and Swinney 2011; Gabrielli et al. 2012). As consumer needs for difference and continuously shifting lifestyle changes occur faster than ever before, the fashion industry is required to keep up the pace (Barnes and Lea-Greenwood 2006).

Consumers as Drivers of Fast Fashion

Gabrielli et al. (2012) describe fast fashion not only as a quick-to-market business model but also as a "highly involved meaning-attribution process accomplished by postmodern consumers aiming to express their personal lifestyle through consumption and possession." As such, the modern consumer is integral in today's fashion industry through both purchasing power and their roles as "proactive assemblers of signs and symbols (Gabrielli et al. 2012)." Mass communication has given consumers an unprecedented access to information and trends, increasing their ability to shop more often and seek out the most affordable options (Bhardwaj and Fairhurst 2010; Barnes and Lea-Greenwood 2006). Fashion retailers use planned obsolescence practices to exploit the unlimited access and impulse to purchase. Such planned obsolescence practices include limiting functional life design and options for repair or including aesthetics that later on lead to reduced satisfaction (Joy et al. 2012). Often referred to as "McFashion," fast fashion provides consumers with gratification at an incredible speed (Joy et al. 2012). Young consumers today readily feel more inclined to purchase a larger number of low-quality, cheap, and trendy clothes in comparison to baby boomers (Bhardwaj and Fairhurst 2010).

In addition to providing consumers with immediate gratification and enabling impulse purchasing habits, retailers in the fast fashion industry view consumers as active individuals using clothing to validate their identity and personal lifestyle (Gabrielli et al. 2012). Gabrielli et al. (2012) posit that consumers can shape meanings, symbols, and experiences around a product. This perspective is grounded in Consumer Culture Theory (CCT), which asserts that a dynamic relationship exists between consumers, the marketplace, and cultural meanings (Arnould and Thompson 2005). "Market-made commodities" and "desire-inducing marketing" are essential to consumer culture and continue to be perpetuated through the freedoms of personal choice (Arnould and Thompson 2005). Consumption practices take on a variety of dimensions as tools for other goals including consuming as experience, integration, play, and classification (Gabrielli et al.

2012). Gabrielli et al. (2012) finds that consumers are beginning to move from the intrinsic quality of a clothing item to the experience and emotional charge associated with it. Low-quality fast fashion items are seen as a compromise for consumers and the term "fast fashion" is met with ambivalence. While there may be tension associated with buying a certain item, fast fashion easies any concerns due to the affordable price. These findings confirm that fast fashion is in a period of rapid propagation across a variety of age ranges and lifestyles (Gabrielli et al. 2012).

Larger Problem

Fast fashion and overconsumption's impact on the environment

The fast fashion industry has created an alarming culture of overconsumption. While the global average clothing consumption is 11 lbs. per person, the average North American consumer purchased an average of 35 lbs. of new clothing in 2014 (Greenpeace International 2016). By 2030, global apparel consumption is expected to rise from 62 million tonnes per year to 102 million tonnes (Niinimäki et al. 2020). The fashion supply chain consists of successive globalized processes including agriculture for natural fibers, petrochemicals for synthetics, manufacturing, logistics, and retail (Niinimäki et al. 2020). Oftentimes, each step of the garment production supply chain takes place in a different part of the country, meaning that a single item of clothing may have traveled the globe once or twice before reaching the end consumer. In terms of environmental impacts, those of the rapidly growing fashion industry span water, energy, and chemical use, as well as CO_2 emissions and pre- and post-textile waste production. It is estimated that the fashion industry alone used 79 billion cubic meters of water in 2015 and currently produces 8.1% of global CO_2 emissions conservatively ((Niinimäki et al. 2020).

The waste and supply chains of this industry have created a global environmental justice issue. While the United States consumes more clothing and textile products than any other country, most garments are assembled in countries like China and Bangladesh (Bick et al. 2018). During production outsourced to lower and middle-income countries (LMICs), workers face hazards from heavy metal release from textile dyeing. LMICs produce 90% of the world's clothing, and workers are exposed to a myriad of occupational health hazards including respiratory and musculoskeletal hazards. These have resulted in conditions like lung disease, cancer, damaged endocrine function, accidental and overuse injuries, and death (Bick et al. 2018).

With the environmental and social effects of the global fashion industry in mind, greater importance is being placed on society's consumption patterns. However, fast fashion has become a widely accepted social norm with many young consumers unaware of the negative impacts of vast overconsumption (Diddi et al. 2019). Diddi et al. (2019) found that in a study of sustainable clothing consumption behaviors (SCCB), consumers engage in SCCBs due to the perceived value across factors such as time, money, effort, and product longevity. Cost-benefit analyses of economic, social, and psychological factors are often utilized to determine whether to engage SCCB, with engagement consistently being perceived as expensive. Ultimately, young adults will participate in SCCBs when it is convenient, affordable, and results in value creation for them (Diddi et al. 2019). Currently, the main challenges that exist in overcoming overconsumption mindsets include the focus on costs, the lack of mainstream sustainable clothing, and the inability to engage with consumers effectively (Harris et al. 2016). A large part of reframing the fast fashion narrative requires addressing consumers and their interactions with fashion retailers.

Terms and Definitions

This thesis explores the sustainability content distribution across Twitter platforms of both fast fashion and "publicly recognized sustainable" fashion retailers, as well as the interactions of consumers with this content. To distinguish between fast fashion and "publicly recognized sustainable" fashion retailers, we can utilize the Remake Seal of Approval Criteria, which ranks retailers out of 100 points across five different categories: (1) Transparency and Traceability; (2) Maker Well Being; (3) Environmental Sustainability; (4) Sustainable Raw Materials; and (5) Leadership, Diversity, and Inclusion. Remake is a 501(c) (3) registered nonprofit advocacy organization fighting for climate justice and fair pay for garment workers in the global clothing industry (Remake 2017). Remake's Seal of Approval Criteria was chosen amongst a variety of other ranking indices, including the Sustainable Cotton Index, Fashion Transparency Index, Supply Chain CITI Evaluation, and Filthy Fashion Scorecard. This is due to the accessibility, transparency, and comprehensiveness of the Remake Seal of Approval. While other indices focused on certain aspects of sustainability, such as sustainability communication transparency, sustainability of materials, or supply chain transparency, the Remake Seal of Approval encompasses multiple essential dimensions of sustainability as stated above. Remake also includes

a comprehensive list of rankings including global retailers such as Zara, H&M, and Gap, but also smaller niche brands such as Prana and Outerknown. This allows for a reasonable and comprehensive comparison between larger well-known brands and smaller brands that may not be included on well-known indices.

LITERATURE REVIEW

Existing work in consumer and CSR content relationship

Various studies have explored the relationship between consumers and their interactions with firms' corporate social responsibility (CSR) scores, communication practices, and reporting. To test the relationship between green advertising messaging on brand attitudes and purchase intent, Nyilasy et al. (2014) designed a study across three levels of firm environmental performance (high, low, and no performance information) and three levels of advertising messaging (green, general, and no advertising stimulus). The study found that respondents were most favorable to no advertising when firms had high environmental performances. However, when the firm had negative environmental performance corporate advertising, as opposed to green or no advertising, this was most favorable. Purchase intentions were only found to be affected by firm environmental performance, rather than information communicated via advertising. This suggests that consumers can form negative attributions toward the company if there are discrepancies present between green advertising and corporate performance. These results are grounded in attribution theory.

The implications of CSR communications on brand evaluation and identity are also grounded in attribution theory. As described by Parguel et al. (2011), a brand's communicated identity is a facet of its corporate identity used in marketing and should reflect the "immediate mental picture and individual has of an organization." As such, corporate identity should be aligned with the image presented in CSR communications. CSR communications can take one of three approaches: reputation management, building a virtuous corporate brand, or ethical product differentiation (Van de Ven 2008). While CSR information can be either controlled or uncontrolled (word of mouth, mass media, or NGO communications), greater amounts of positive uncontrolled

information is required (Balmer et al. 2007). CSR communications can have intrinsic motivations, attributed to the disposition of the actor, or extrinsic motivations, which are attributed to environmental factors. Companies that take an intrinsic motivation to CSR communications are seen by consumers as possessing a genuine environmental consciousness. Companies that openly display intrinsic motivations can gain greater rewards for CSR efforts. Ultimately, relative to an absence of information, a good sustainability rating has a limited impact on brand evaluation, whereas a poor sustainability rating can damage brand evaluation (Parguel et al. 2011).

While attribution theory supports and justifies findings regarding the downfalls of greenwashing by brands, Lyon and Montgomery (2013) theorize that social media can reduce the incidence of corporate greenwashing. With the rise of social media, corporations and their stakeholders can form new dynamics of interacting, sharing, and connecting. Between 2010 and 2012, there was a 50% increase in the number of major global firms using social media to conduct sustainability dialogues with stakeholders (Yeomans 2013). However, the upsurge in social media as a means of sustainability communication has created concerns surrounding greenwashing by major corporations. Social media platforms, such as Facebook and Twitter, challenge practices of traditional media, especially as they relate to greenwashing and stakeholder pressures. Social media is more accessible to consumers and activists, allows for free coverage for NGOs and full control over content, can spread "viral" information, and finally provides a platform for open two-way communication (Benkler 2006). Lyon and Montgomery's theoretical framework suggests that while social media can reduce corporate greenwash, the effects are felt differently based on the firm. When green firms have bad news to report, they should consider reducing the inclusion of green accomplishments. However, firms with brown reputations, or poor environmental track records, should disclose their full environmental impacts in similar circumstances (Morsing et al. 2008; Lyon and Montgomery 2013). All firms should use social media by focusing on their greenest products.

Theories

Various theories currently exist surrounding the nature of businesses' motivations for CSR initiatives and reporting. Such theories allow for the creation of a framework that will substantiate

and allow for further understanding of the sustainability social media content distribution of fashion retailers.

Greenwashing theory hypothesizes that companies with poor social and environmental performance are more likely to engage in CSR reporting to change stakeholder perceptions regarding true performance (Uyar et al. 2020). However, in the long run greenwashing may risk firm legitimacy, trigger consumer skepticism, and negatively influence brand attitudes and purchase intent. In contrast, signaling theory hypothesizes that companies with superior social and environmental performance are more likely to engage in CSR reporting (Uyar et al. 2020). If consumers and other stakeholders do not learn about corporate social and environmental efforts, companies will not gain a competitive advantage. Legitimacy theory poses yet another explanation for CSR disclosure, suggesting that "disclosure is a direct function of social and/or political pressure faced by organizations" (Cho and Roberts 2010). Legitimacy theory argues that organizations are only legitimate to the extent that their activities align with underlying systems. To maintain or repair legitimacy, organizations must use communication to "project an image of social legitimacy" (Cho and Roberts 2010). While slightly different in motivation, all theories point to the need for companies to utilize CSR as a method of influencing or maintaining positive stakeholder perceptions, rather than pursuing CSR as a means of innovation or gaining competitive advantage in the current socio-political climate. As such, this highlights the importance of stakeholder influence on CSR initiatives and policy mediation, which is incredibly important for actors of poor environmental and social practices like fast fashion companies.

METHODS

This thesis utilizes a combination of qualitative and quantitative methods to explore how fashion retailers use social media, specifically Twitter, to portray their CSR identities. I use Twitter, as opposed to other social media platforms, due to the two-way nature of communication between companies and users which tends to be less formal (Benkler 2006). As a platform, Twitter is also conducive to more frequent posting from users, thus giving more data to work with in comparison to Instagram or Facebook. It is also often the most well received form of communications when companies are dealing with crisis situations or aiming to establish legitimacy (Schultz et al. 2011). Because of Twitter's open-source Application Programming

Interface (API), users can download tweets from any public user's tweets across their account history. As such, this makes it the ideal platform to analyze CSR communications over long periods of time. To understand how consumers talk about fast fashion companies, Twitter's advanced search engine based on hashtags, mentioned users, and keywords will allow me to perform reverse searches and collect all relevant tweets discussing my chosen companies of interest. Quantitatively, using Python to download and analyze tweets will allow me to easily understand the frequency, length, times, and content type each company uses. Qualitatively, coding tweets across the five different dimensions used in the Remake Seal of Approval Criteria based on keywords relating to each category will allow me the flexibility to place tweets into one or more categories.

Data collection

Consumer interactions and beliefs regarding fashion sustainability and social media

For my first sub question, I created an online survey using the Qualtrics XM platform and administered it to UC Berkeley students. The survey consisted of four different sections. First, respondents were asked a series of questions about their interest in sustainability, which platforms they use to engage in sustainability topics, and how often they engage on these platforms. Next, they were asked to rate how strongly they agreed or disagreed with a list of statements related to sustainability and clothing purchases. The third section showed respondents five anonymized tweets from fashion brands representing the following categories: (1) Traceability & Transparency, (2) Maker Well Being, (3) Environmental Sustainability, (4) Sustainable Raw Materials, (5) Leadership, Diversity, Inclusion. Based on these tweets, respondents were asked if they would be likely to purchase from the brand, engage with the tweet, and if they believed the brand was sustainable or not. Finally, respondents were asked to provide demographic information.

ESG and sustainability content themes on corporate fashion Twitter accounts

To collect data for my second sub question, I collected tweets from fashion brands' corporate accounts using the snscrape module on Python. I chose a total of 8 brands which were included and scored in Remake's 2022 Fashion Accountability Report: Everlane, Patagonia, The North Face (TFN), Reformation, Nike, Levi's, Gap, and Zara. Remake is a global advocacy organization with the mission of holding fashion companies accountable for their treatment of garment workers and environmental practices. Working with labor rights organizations, academic experts, and thought leaders, Remake built a framework that measures companies' progress towards accountability in the following six categories with a total possible score of 150: Traceability (8 points), Wages and Wellbeing (23 points), Commercial Practices (15 points), Raw Materials (20 points), Environmental Justice (42 points), and Governance (42 points). Information used to score brands across these categories was based on information published in the public domain, most commonly on their websites or sustainability reports. Four of the brands chosen (Everlane, Patagonia, TFN, and Reformation) have a clear company ethos of social or environmental good which is displayed in either their mission statement, marketing, or company structure. The other four brands I chose (Nike, Levi's, Gap, and Zara) are recognized fast fashion brands with a focus on carrying a large variety of trendy and affordable pieces. Given the differences in frequency of tweeting and activity of each account, I collected the 100 most recent tweets from each brand's corporate account from January 1, 2019, to January 1, 2023.

Consumer mentions of fashion companies on Twitter

Finally, to collect tweets from consumers, I used a similar data collection method to the first question. Again, using snscrape on Python, I collected 500 of the most recent tweets for each of the 8 brands. I selected tweets which contained a mention of the brand and excluded all tweets which were tweeted from the brand of interest's corporate account.

Data analysis

Consumer interactions and beliefs regarding fashion sustainability and social media

To interpret the results from the survey, I used both Qualtrics and Excel to create charts and graphs to represent respondents' answers. Utilizing Qualtrics' platform, I was able to test for statistically significant relationships between different survey questions and perform Chi Square and ANOVA tests. For longer response and open-ended text entry survey questions, I created word clouds to represent words or phrases which were most used.

ESG and sustainability content themes on corporate fashion Twitter accounts

To code the tweets collected for the first sub question, I exported the Pandas tables of tweets into Excel files and uploaded them to Taguette, an online text tagging tool for qualitative data analysis. I used the method of thematic analysis (TA), or coding, which is a flexible method of identifying, analyzing, and reporting themes within data such as open-ended responses in surveys or interview transcripts (Castleberry 2018). Coding data usually involves attaching a descriptive label to a unit of data which can vary in size, but oftentimes encompasses a complete thought (Castleberry 2018). Because of the short length and the nature of tweets, I decided to code entire tweets under descriptive labels, although some tweets did have multiple labels. To code the tweets, I used a combination of data-driven and concept driven coding. Concept-driven coding involves pulling from background literature and previous studies to establish potential codes, whereas data-driven coding attempts to pull from the data rather than imposing an interpretation from pre-existing knowledge (Gibbs 2012). While I began with a set of initial codes inspired by themes developed by Remake to score fashion brands' overall sustainability levels, I also allowed for emerging themes to come from the data. Once I finished coding all 800 tweets, I created charts to represent the makeup of codes for each corporate account, as well as to represent the most popular codes across all corporate accounts.

Consumer mentions of fashion companies on Twitter

To score the tweets collected from consumers about each of the selected brands, I used Python's Natural Language Toolkit (NLTK) as part of their Natural Language Processing (NLP) programs. I used both the TextBlob and VADER (Valence Aware Dictionary and sEntiment Reasoner) to analyze the sentiment of the tweets to account for differences in the programs'

capabilities. While TextBlob is more focused on formal text speech, VADER is built to identify sentiment shown on social media and attempts to consider repeated words, emoticons, and punctuation. For each tweet, I used modules from the library to assign a score ranging from negative to positive to neutral (-1 to 1).
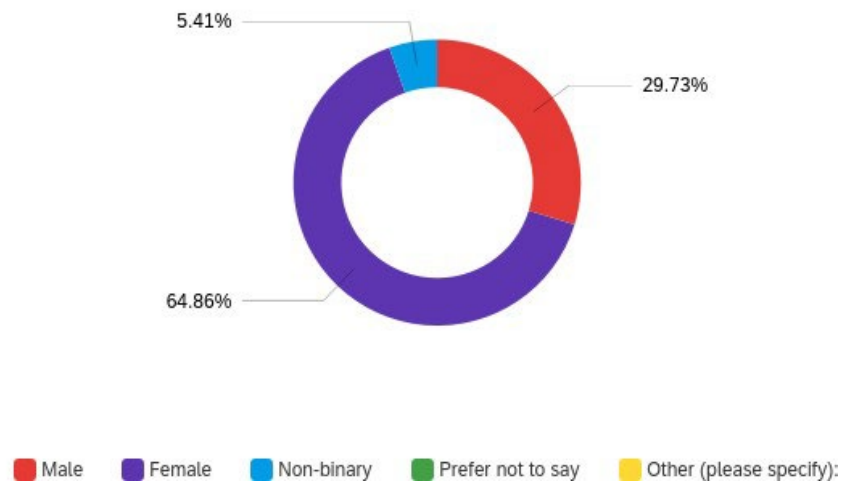
RESULTS

Consumer Interactions and Beliefs Regarding Fashion Sustainability and Social Media

Survey Demographics

Of the 74 total survey respondents who were all UC Berkeley students, 64.86% identified as female, 29.73% identified as male, and 5.41% identified as non-binary (Figure 1).

Figure 1. Gender distribution of sampled population

The racial and ethnic makeup of survey respondents was primarily Asian (54.76%) and Caucasian/White (33.33%), and Black/African American and Other (Latin American and Middle Eastern) being the minority (Figure 2).
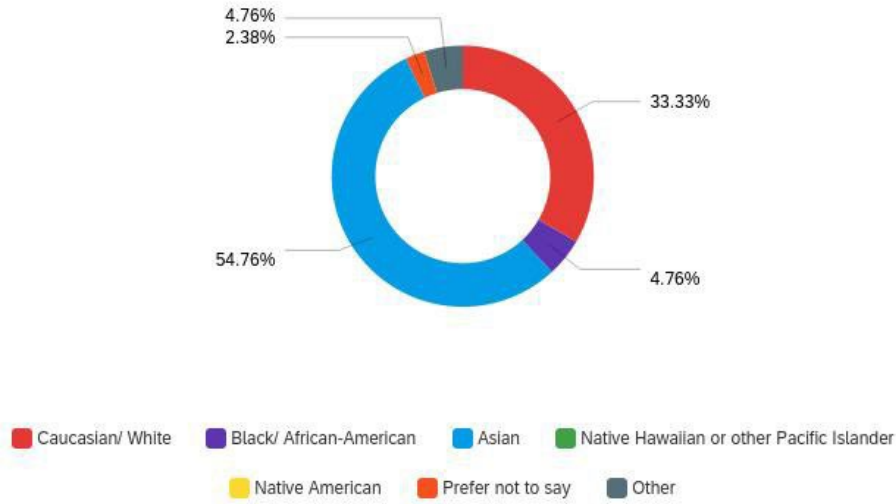
Racial/Ethnic Background

Figure 2. Racial/ethnic distribution of the sampled population

The school year distribution of the sampled population consisted of a large portion of seniors (42.11%) amongst all other year groups (Figure 3).
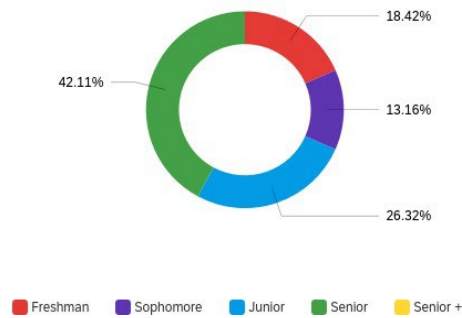
Year at UC Berkeley

Figure 3. School year distribution of the sampled population.

Survey results

Sustainability engagement and learning

Survey respondents indicated that out of five different platforms (Family and friends, social media, news, podcasts, and blogs/op-eds), they were most likely to choose social media as their primary

means of learning and sharing about issues in sustainability. The table below shows the average percentage allocated to each of the platforms when respondents were asked to report the percentage of time, they spend on each of the platforms when they choose to learn about sustainability (Table 3).

#	Field	Mean	Std Deviation
1	Family and friends	32.40	24.20
2	Social media (Facebook, Instagram, Twitter, Youtube, TikTok, Snapchat, etc.)	37.96	25.42
3	News	21.94	19.36
4	Podcasts	4.69	9.32
5	Blogs/Op-Eds	3.02	7.55

Table 3. Average percentage of time spent on different platforms engaging in sustainability topics.

On their preferred platforms, it was most common that survey respondents engaged in topics of sustainability approximately 1 to 2 times per week.
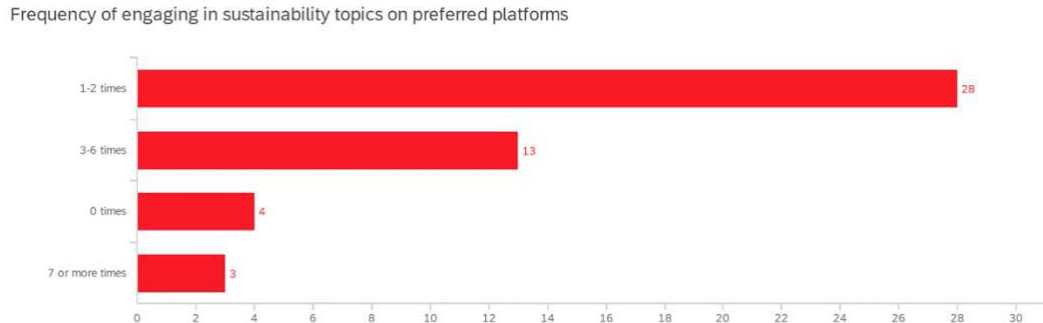
Figure 4. Frequency of engaging in sustainability topics on preferred platforms.

When asked to elaborate on their reasoning for choosing certain platforms over others, many respondents mentioned the accessibility, convenience, and ease of use as primary reasons as to why they chose their preferred platform, most commonly social media (Table 4).

Is there a reason you prefer certain platforms over others? Please elaborate.
my tiktok feed has a lot of content centered around sustainability.
i like listening to podcasts because i can listen while i'm doing other things
YouTube videos tend to give more nuanced information due to the longer run time.
No
Tik tok and youtube provide longer form content which I like. Instagram feels repetitive
I enjoy the opinions on certain websites opposed to others.
Ease of access, I have a short attention span
No
My area of study is sustainability-focused so I try to focus on more informative platforms such as science journals and articles.
I don't really have social media, and I don't listen to podcasts or read blogs because I think they're boring, so that's why those are listed at 0%.
News is something I check daily and is an easy way too see the biggest variety.
More convenient, easier to access
Social media is easy. News is informational
Tik tok's short form content makes environmentalism really digestible, simple, and entertaining.
I trust family/friends over random news articles cuz they might be paid/sponsored to say things

Table 4. Elaboration on reasons for choosing preferred platform.

Interactions with corporate tweets

Across all dimensions of tweets, the tweets focusing on "Traceability and Transparency", "Sustainable Raw Materials", and "Maker & Employee Well-Being", had the highest level of purchasing intentions, with the greatest number of respondents indicating that based on the tweet they would be "Somewhat likely" to purchase from the brand (Figures 5, 11, 14). In response to the "Maker & Employee Well Being" and "Diversity, Equity, and Inclusion" tweets, respondents most frequently chose "neither agree nor disagree" when deciding whether the brand was sustainable based on the tweet. Finally, across all tweets respondents most often were "Extremely unlikely" to interact with the tweet.

Sustainable fashion perceptions and behaviors

Based on a word association in which respondents were asked to provide three words that came to mind when they heard "sustainable fashion", the most frequently reported words were "expensive", "thrift", "eco-friendly", "reuse", and "long-lasting" (Figure 5).

What words come to mind when you hear "sustainable fashion"?

Figure 5. "Sustainable Fashion" Word Association Cloud.

Among all sustainable consumption behaviors shown to respondents, they most reported that they engaged in purchasing secondhand clothing in-person and reducing overall clothing purchases (Figure 6). Listed in "Other", one respondent reported that they made their own clothing to engage in sustainable consumption.

Which of the following sustainable consumption behaviors do you engage in?
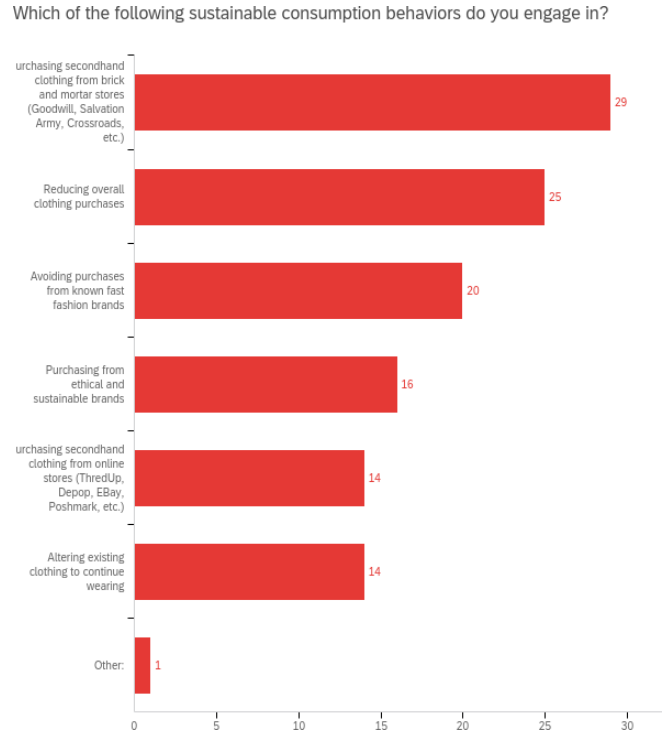
**Figure 6. Common sustainable consumption behaviors.**

When ranking the categories of a company's sustainability and environmental practices based on which they valued most, respondents selected "Environmental sustainability: extent to which a company is taking actions to improve or minimize negative impact of product and operations on the environment and investing in more sustainable manufacturing practices" most often as the category they valued most (Figure 7).

Ranked categories of company's sustainability and environmental practices based on consumer values
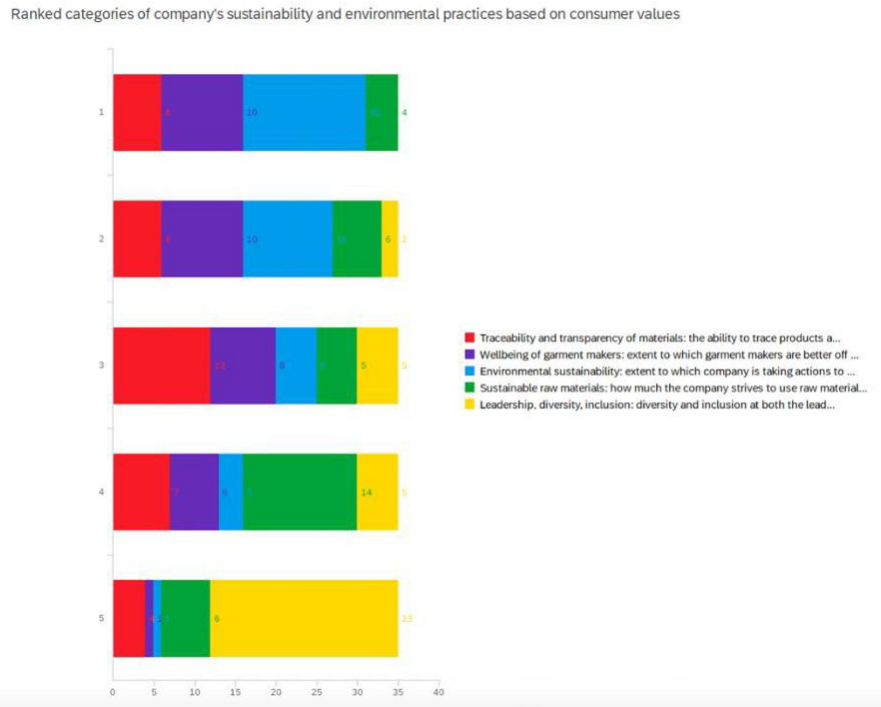
Figure 7. Ranked importance of practice types based on consumer values.

Respondents reported that they were most likely to turn to a company's website or campaign when attempting to learn more about their company's sustainability and environmental practices (Figure 8).

How do you primarily learn about a company's sustainability and environmental practices?
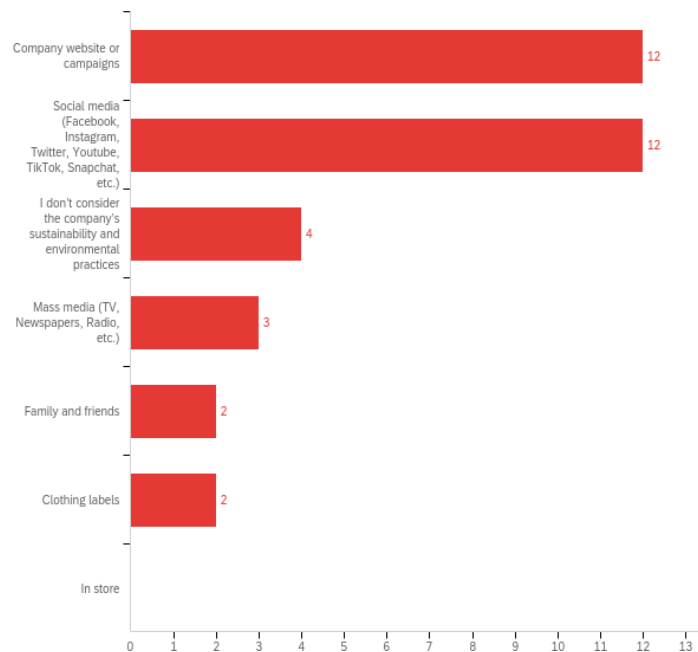
Figure 8. Primary method to learn about a company's sustainability and environmental practices.

Finally, when asked to elaborate on why or why not they may consider a company's practices when purchasing clothing, some respondents reported that social media contributed to how they felt about the brand (Table 5). Some also mentioned that they did not always consider sustainability due to greater importance on price or aesthetics.

Please elaborate on the above question. Is there a reason you may or may not consider a company's sustainability and environmental practices?
look for a sustainability report for larger brands and if that is misleading then i usually look for alternatives
Social media will usually widely publicize whether or not certain companies should be purchased from.
Often I only hear of a company's suitability practices when it's talked about in media (Zara and H&M's involvement in the Rana Plaza Factory Collapse, Burberry burning clothing for the sake of exclusivity, Balenciaga's recent scandals, etc.)
I'm shallow and only care about what makes me look good. Therefore, I do not consider sustainability practices of the brand in which I'm buying clothes for
In addition to those above options, I'd also just google the company and see if people have tried tracking the company's practices. I usually buy secondhand when I do buy new clothes, but sometimes I do not consider these practices when I buy new because I can't afford a whole wardrobe of sustainable brand clothing.
If I'm broke and can't afford to get a specific article of clothing that I absolutely need (usually uncommon) and a sustainable alternative is too expensive, then I will purchase what is in my price bracket, even if it's not sustainable. This is if I've exhausted thrift stores and asking my friends/family if I can borrow something.

Table 5. Elaboration on reasons considering sustainability practices.

ESG and sustainability content themes on corporate fashion Twitter accounts

After thematic coding of the tweets, I found that there was no clear correlation between tweet types and the Remake accountability score associated with the company based on a regression analysis with each of the tweet categories per company and the Remake scores. I initially began with an *a priori* framework, or set list of codes, before I started coding tweets, which included the following: Traceability & Transparency; Sustainable Raw Materials; Maker/Employee Well Being; Leadership, Diversity, and Inclusion; and Environmental Sustainability. However, the following common themes emerged once I began coding the tweets: Providing a Platform, Political Alignment, and Charitable Contributions. The table below includes both the *a priori* codes and the emergent codes, as well as their working definitions (Table 6).

Code Label	Definition
Traceability & Transparency	Company shares information about where their products are made and who makes them. There is the ability to trace products and their components back to the origin of raw materials.
Maker/Employee Well Being	Company shares the extent to which makers are better off from their role in terms of labor rights, living wage, being able to invest in their futures and well-beings, and accessing skills or resources to advance their communities.
Environmental Sustainability	Company shares the extent to which they are taking actions to improve or minimize the negative impact of product and operations on the environment, investing in more sustainable manufacturing practices.
Sustainable Raw Materials	Company shares about their use of raw materials that are sustainable and improve growers' lives.
Leadership, Diversity and Inclusion	Company shares diversity and inclusion at both the leadership and workplace levels. Includes highlighting diverse stories and initiatives using their platform.
Providing a Platform	Company uses their platform to promote other public interest or sustainability stories, initiatives, news, and organizations.
Political Alignment	Company aligns itself with certain political stances and encourages political actions such as voting or supporting certain acts or measures.
Charitable Contributions	Company shares their charitable contributions to sustainability focused or diversity, equity, and inclusion (DEI) focused organizations.

Table 6. Tweet Coding Methodology Table

Based on the categories above, the "Maker/Employee Well Being" code was the least represented amongst all 8 corporate tweets, while the "Providing a Platform" code was represented the most across all corporate accounts (Figure 9).
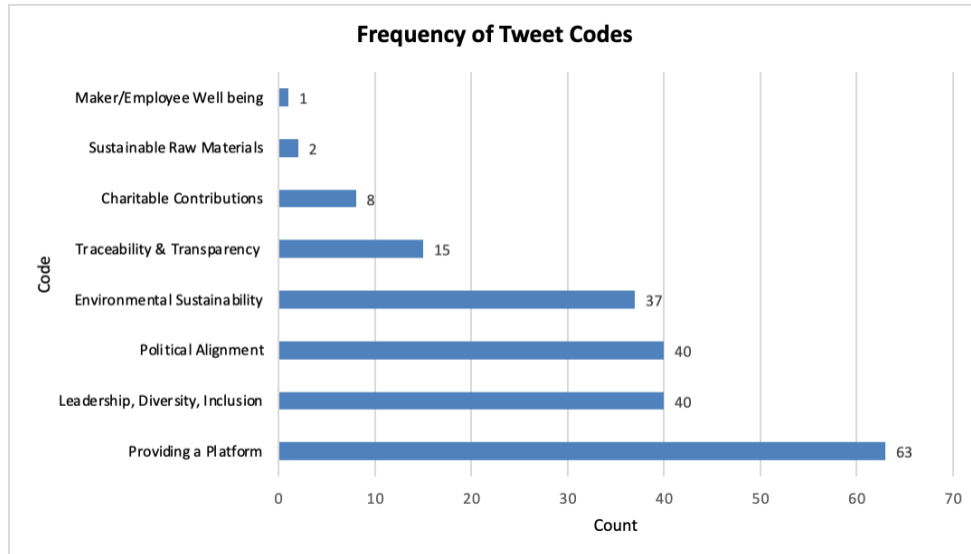
Figure 9. Frequency of tweet codes across all corporate accounts

Of all corporate accounts, Patagonia had the highest number of sustainability and ESG related tweets, while Zara had the least number of tweets (Figure 10). Across all categories, the number of Environmental Sustainability tweets had the highest correlation with a company's Remake accountability score, albeit being a low correlation. Based on a regression analysis, these two variables showed an R squared value of 0.263.
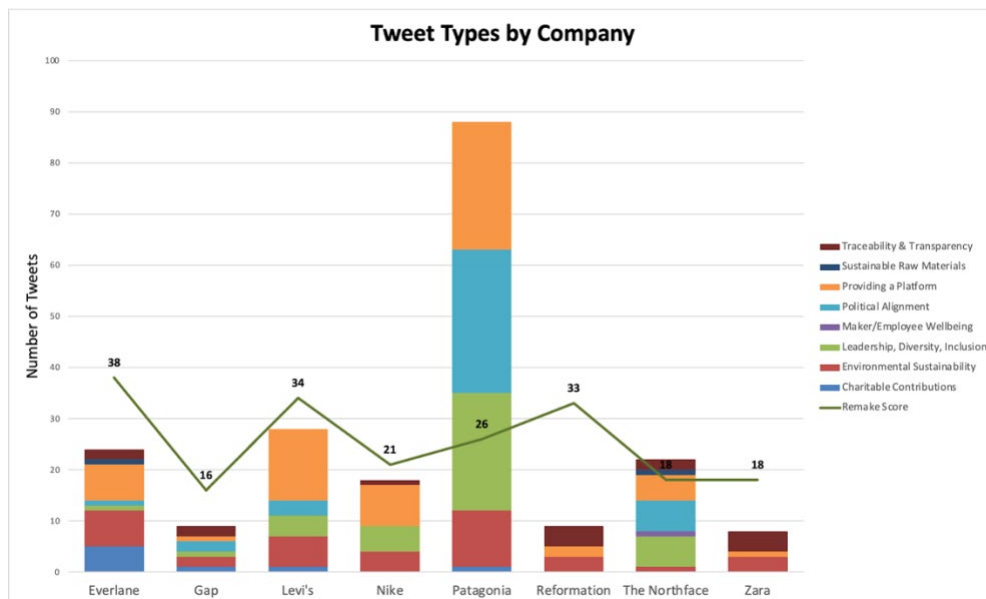

Figure 10. Tweet types by company and associated Remake scores

Consumer mentions of fashion companies on Twitter

Based on the sentiment analysis using TextBlob, I found that 48.9 % of the total tweets were neutral, 12.4% were negative, and 38.6 % were positive. Using VADER (Valence Aware Dictionary and sEntiment Reasoner), I found that 43.6 % of the total tweets were neutral, 15.5% were negative, and 40.8% were positive. The mean score for each of the companies was positive and can be seen in the table and chart below (Table 7, Figure 11).

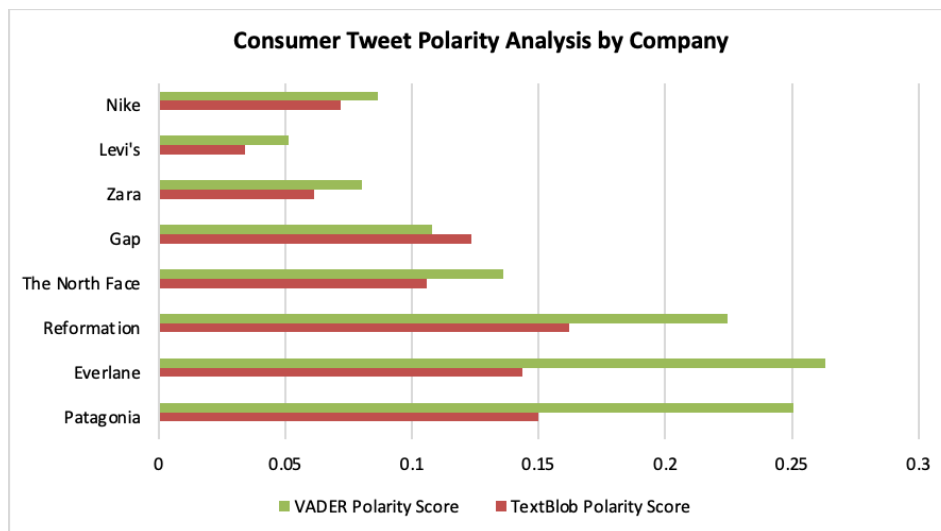| Company Name	TextBlob Polarity Score	VADER Polarity Score
Patagonia	0.150025407	0.2504686
Everlane	0.143572397	0.2634124
Reformation	0.161942616	0.2247702
The North Face	0.105905995	0.1358312
Gap	0.123311437	0.1078704
Zara	0.061458119	0.0799654
Levi's	0.03380045	0.0510358
Nike	0.071948662	0.0865246

Table 7. Average Polarity Score Table

Figure 11. VADER and TextBlob polarity scores by company

DISCUSSION

Consumer interactions and beliefs regarding fashion sustainability and social media

Social media has been shown to have a positive association with users' drive for environmental responsibility, which in turn positively impacts sustainable purchasing attitudes (Zafar et al. 2021). Aligned with the findings of Chung et al. (2020), survey results showed that consumers preferred social media as their primary platform to receive information and engage with ideas and news related to sustainability. Convenience and digestibility were common themes that emerged when consumers were asked to elaborate on their reasons for choosing social media as their primary platform of engagement.

Across all tweets that respondents were shown, the most common response was that they were "Extremely unlikely" to like, retweet, or respond to any of the tweets. While they were shown the tweets, respondents were not able to see who the number of likes, retweets, and who in their network had engaged with the tweet. The lack of willingness to engage could be a result of omitting this information, as Hartmann et al. (2021) found that other social media users' endorsement of specific social media content enhances the likelihood of a user to engage with it. Individuals are often motivated to support company CSR activities because of their own internal desires to define and enhance their own social media identity by aligning themselves with the brand's identity (Bhattacharya and Sen 2003). Therefore, consumers having the highest purchasing intentions for tweets focusing on "Traceability and Transparency", "Sustainable Raw Materials", and "Maker & Employee Well-Being", suggests that these are dimensions of brand identity that they value most. Social media, as well as company websites and campaigns, were found to be the main platforms through which consumers learned about a company's sustainability and environmental practices. Consumers' main motivation to participate in sustainable consumption behaviors (SCBs) is the perceived value from the longevity of the sustainable clothing, but they also perceive that engaging in these behaviors as expensive (Diddi et al. 2019). Consumers will only engage in these behaviors if it is convenient, affordable, and creates value for them. Survey results accordingly showed that consumers associated "sustainable fashion" with "expensive", "reuse", "thrift", and "long-lasting". In contrast with the findings of Diddi et al. (2019), which found that consumers were most likely to purchase from firms with ethical practices, the survey results showed consumers most commonly reported that purchasing secondhand clothing from brick-and-mortar stores was

how they participated in sustainable fashion. However, in both the literature and my findings, consumers were least likely to engage in SCBs by altering their existing clothing.

ESG and sustainability content themes on corporate fashion Twitter accounts

Firms often engage in CSR communications to strengthen their reputation and to demonstrate their adherence to operating within societal norms (Reilly and Larya 2018). Informal social media channels, such as Twitter, are specifically used to provide an interactive two-way communication between firms and individual consumers (Reilly and Larya 2018; Benkler 2006). Across sustainability focused tweets from all eight firms, providing a platform for other organizations, initiatives, and individuals to speak about sustainability was the most common theme. The least common theme shown in the tweets was maker or employee well-being. Based on a study performing a five-year content analysis for eleven fashion firms, highly ranked sustainable fashion companies tended to be more engaged on their Twitter platform and allocated a greater number of tweets to replying to others (Reilly and Larya 2018). Although the findings of my content analysis did not show any statistical significance between Remake accountability score and number of tweets, this may be due to the smaller sample size of tweets per company (n=100), as well as the smaller number of firms investigated. Across a variety of industries – retail, technology, food and beverage, and consumer goods – "Green" firms as designated by Newsweek had a considerably larger combined Facebook and Twitter presence in comparison to "Not Green" firms (Reilly and Hynan 2014). This discrepancy between the literature and my findings again may be due to only focusing on Twitter and sustainability themed tweets.

Consumer mentions of fashion companies on Twitter

In an exploration of brand-related user generated content, Twitter was found to be a platform most used for consumers engaging in discussion and spreading news. For brands receiving critical attention, Twitter tends to yield more neutral and negative content in comparison to YouTube and Facebook (Smith et al. 2012). Results of the sentiment analysis showed that across all firms, tweets were on average positive, although the four firms with less focus on an outwards sustainability and CSR brand identity generally had lower polarity scores. These results are in line with the findings of Pantano et al. (2019), which reported that consumers are more likely to tweet

positively rather than negatively about fashion retailers. This positive sentiment shown when consumers tweet about fashion brands may be due to the primary motivations for interacting with and following brands on Twitter: (1) incentive seeking, (2) social interaction seeking, (3) brand usage and likeability, and (4) information seeking (Kwon et al. 2014). Incentive-seeking was shown to be the most popular motivation, meaning that consumers are utilizing Twitter to incentivize their purchasing behaviors.

Limitations

The population of the survey sample may limit the findings of this study due to the overrepresentation of certain identities among respondents. Most respondents were women, either Asian or Caucasian/White, and of upper middle class or upper-class households. The survey respondents were also limited to UC Berkeley college students. The ethnic, gender, and socioeconomic representations in the sample could have a large impact on respondents' sustainability engagements and behaviors, thus making the findings less generalizable to a wider population.

The social media sentiment and content analysis focused mainly on Twitter, which is only one of many social media platforms in which consumer brand-relationships are established in the context of sustainability. Thus, having only explored the interactions on this single social media platform limits the scope of the interactions and effects that were observed. Similarly, companies have a vast history of Twitter usage, and selecting only 100 of the most recent tweets does not give a full picture of their relationship with sustainability over a longer time. For users, 500 tweets per company were surveyed, but this ultimately only reflects the current climate and relationship with these brands, which may differ times of both favorable and unfavorable news being circulated about these brands. As such, the time frame may have an influence on how negative or positive the selected tweets were overall.

Future direction

Additional survey responses could be collected to further support the findings of this study, more specifically a more diverse set of respondents that better represent the UC Berkeley student population. In the future, a survey directed to a larger range of age groups would be beneficial in

applying these findings to the general population. Given the increased use of Instagram as a means for fast fashion brands to advertise to and interact with consumers, expanding sentiment analysis and consumer perception analysis to both Twitter and Instagram would be more impactful. Finally, being able to further interview respondents about their reactions to tweets and their opinions and thoughts on sustainability behaviors and sustainable consumption would provide valuable insights.

Broader implications and conclusions

Consumers rely on companies' social media platforms and campaigns to learn more about their sustainability and environmental practices. As such, consumers expect firms to be involved in social initiatives and may reward them via their own purchasing behavior. However, if firms act irresponsibly, consumers are likely to boycott brands if they can find reasonable alternatives (Becker-Olsen et al. 2006). Because of consumers' relationship with Twitter as an independent social actor, brands may be able to utilize this platform for crisis and reputation management, as consumers are less likely to boycott organizations or speak negatively when Twitter is utilized following a crisis event (Li and Li 2014; Schultz et al. 2011). However, even though a more active overall social media presence has been shown to be correlated with a higher sustainability rank, consumers should be wary when engaging with brands' sustainability focused content as that specific content may not have the same positive association with sustainability ranking (Reilly and Larya 2018). In terms of consumers' practice of sustainable consumption behaviors, brands should focus on social media content emphasizing the durability and longevity of their sustainable clothing, as this is one of consumers' main draws to sustainable fashion (Diddi et. al 2019). Because alteration of existing clothing is one of the least common behaviors, sustainable brands can build out more programs to make alteration of clothing perceived as more expensive accessible to consumers.

REFERENCES

Balmer, J. M. T. 2017. The corporate identity, total corporate communications, stakeholders' attributed identities, identifications and behaviours continuum. European Journal of Marketing 51:1472–1502.

Benkler, Y. 2006. The Wealth of Networks: How Social Production Transforms Markets and Freedom. Yale University Press.

Bhattacharya, C. B., and S. Sen. 2003. Consumer-Company Identification: A Framework for Understanding Consumers' Relationships with Companies. Journal of Marketing 67:76–88.

Bick, R., E. Halsey, and C. C. Ekenga. 2018. The global environmental injustice of fast fashion. Environmental Health 17:92.

Buzzo, A., and M. J. Abreu. 2019. Fast Fashion, Fashion Brands & Sustainable Consumption. Pages 1–17 *in* S. S. Muthu, editor. Fast Fashion, Fashion Brands and Sustainable Consumption. Springer, Singapore.

Cachon, G. P., and R. Swinney. 2011. The Value of Fast Fashion: Quick Response, Enhanced Design, and Strategic Consumer Behavior. Management Science 57:778–795.

Caro, F., and V. Martínez-de-Albéniz. 2015. Fast Fashion: Business Model Overview and Research Opportunities. Pages 237–264 *in* N. Agrawal and S. A. Smith, editors. Retail Supply Chain Management. Springer US, Boston, MA.

Carrigan, M., and A. Attalla. 2001. The myth of the ethical consumer – do ethics matter in purchase behaviour? Journal of Consumer Marketing 18:560–578.

Castleberry, A., and A. Nolen. 2018. Thematic analysis of qualitative research data: Is it as easy as it sounds? Currents in Pharmacy Teaching and Learning 10:807–815.

Cho, C. H., and R. W. Roberts. 2010. Environmental reporting on the internet by America's Toxic 100: Legitimacy and self-presentation. International Journal of Accounting Information Systems 11:1–16.

Chung, C.-H., D. K. W. Chiu, K. K. W. Ho, and C. H. Au. 2020. Applying social media to environmental education: is it more impactful than traditional media? Information Discovery and Delivery 48:255–266.

Diddi, S., R.-N. Yan, B. Bloodhart, V. Bajtelsmit, and K. McShane. 2019. Exploring young adult consumers' sustainable clothing consumption intention-behavior gap: A Behavioral Reasoning Theory perspective. Sustainable Production and Consumption 18:200–209.

Full article: The 'Catch 22' of communicating CSR: Findings from a Danish study. (n.d.). . https://www.tandfonline.com/doi/full/10.1080/13527260701856608.

Gabrielli, V., I. Baghi, and V. Codeluppi. 2013. Consumption practices of fast fashion products: a consumer-based approach. Journal of Fashion Marketing and Management: An International Journal 17:206–224.

Gibbs, G. 2007. Analyzing Qualitative Data. SAGE Publications, Ltd, 1 Oliver's Yard, 55 City Road, London England EC1Y 1SP United Kingdom.

Harris, F., H. Roby, and S. Dibb. 2016. Sustainable clothing: challenges, barriers and interventions for encouraging more sustainable consumer behaviour: Sustainable clothing. International Journal of Consumer Studies 40:309–318.

Hartmann, P., P. Fernández, V. Apaolaza, M. Eisend, and C. D'Souza. 2021. Explaining Viral CSR Message Propagation in Social Media: The Role of Normative Influences. Journal of Business Ethics 173:365–385.

Khandual, A., and S. Pradhan. 2019. Fashion Brands and Consumers Approach Towards Sustainable Fashion. Pages 37–54 *in* S. S. Muthu, editor. Fast Fashion, Fashion Brands and Sustainable Consumption. Springer, Singapore.

Kwon, E., E. Kim, Y. Sung, and C. Yoo. 2015. Brand followers: Consumer motivation and attitude towards brand communications on Twitter. International Journal of Advertising 33:657.

Li, Z., and C. Li. 2014. Twitter as a social actor: How consumers evaluate brands differently on Twitter based on relationship norms. Computers in Human Behavior 39:187–196.

Lozano, R. 2020. Analysing the use of tools, initiatives, and approaches to promote sustainability in corporations. Corporate Social Responsibility and Environmental Management 27:982–998.

Lyon, T. P., and A. W. Montgomery. 2013. Tweetjacked: The Impact of Social Media on Corporate Greenwash. Journal of Business Ethics 118:747–757.

Niinimäki, K., G. Peters, H. Dahlbo, P. Perry, T. Rissanen, and A. Gwilt. 2020. The environmental price of fast fashion. Nature Reviews Earth & Environment 1:189–200.

Pantano, E., S. Giglio, and C. Dennis. 2018. Making sense of consumers' tweets: Sentiment outcomes for fast fashion retailers through Big Data analytics. International Journal of Retail & Distribution Management 47:915–927.

Parguel, B., F. Benoît-Moreau, and F. Larceneux. 2011. How Sustainability Ratings Might Deter "Greenwashing": A Closer Look at Ethical Corporate Communication. Journal of Business Ethics 102:15–28.

Reilly, A. H., and K. A. Hynan. 2014. Corporate communication, sustainability, and social media: It's not easy (really) being green. Business Horizons 57:747–758.

Reilly, A., and N. Larya. 2018. External Communication About Sustainability: Corporate Social Responsibility Reports and Social Media Activity. Environmental Communication 12:1–17.

Sailer, A., H. Wilfing, and E. Straus. 2022. Greenwashing and Bluewashing in Black Friday-Related Sustainable Fashion Marketing on Instagram. Sustainability 14:1494.

Schultz, F., S. Utz, and A. Göritz. 2011. Is the medium the message? Perceptions of and reactions to crisis communication via twitter, blogs and traditional media. Public Relations Review 37:20–27.

Shen, D., J. Richards, and F. Liu. 2013. Consumer's Awareness of Sustainable Fashion. Marketing Management Journal 23.

Smith, A. N., E. Fischer, and C. Yongjian. 2012. How Does Brand-related User-generated Content Differ across YouTube, Facebook, and Twitter? Journal of Interactive Marketing 26:102–113.

Uyar, A., A. S. Karaman, and M. Kilic. 2020. Is corporate social responsibility reporting a tool of signaling or greenwashing? Evidence from the worldwide logistics sector. Journal of Cleaner Production 253:119997.

van de Ven, B. 2008. An Ethical Framework for the Marketing of Corporate Social Responsibility. Journal of Business Ethics 82:339–352.

Yeomans, H. 2013. Blurred visions: experts, evidence and the promotion of moderate drinking. The Sociological Review 61:58–78.

Zafar, A. U., J. Shen, M. Ashfaq, and M. Shahzad. 2021. Social media and sustainable purchasing attitude: Role of trust in social media and environmental effectiveness. Journal of Retailing and Consumer Services 63:102751.