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**BUSINESSES' MARKETING PRACTICES FOR DRIVING SUSTAINABLE
BEHAVIOR CHANGES AMONG CONSUMERS**

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BUSINESSES' MARKETING
INTERVENTIONS FOR DRIVING
SUSTAINABLE BEHAVIOR
CHANGES AMONG CONSUMERS

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1 CHAPTER 1: INTRODUCTION

1.1 OVERVIEW OF THE RESEARCH PROBLEM

The COVID-19 pandemic has caused a global health, economic, and social crisis (Selby & Kagawa, 2020; Webster et al., 2020). In response, public authorities have implemented measures such as mask wearing, social distancing, and hand disinfections, drastically altering people's way of life. These restrictions, experienced cumulatively during the pandemic, have led consumers to recognize the beneficial effects of collective citizen mobilization and behavior change (Fishbein & Ajzen, 2011; Selby & Kagawa, 2020). Consumers have become more open to adopting behaviors and making habit changes that can mitigate the detrimental effects of not only the COVID crisis, but other crises as well, such as the ecological crisis (Ohman, 2017; Van Der Linden, 2017). Indeed, some authors have referred to the pandemic as a "large-scale, unintentional, but enlightening experiment" (Webster et al., 2020).

This crisis has acted as a catalyst for many societal changes, such as remote work, e-commerce, telemedicine, and e-learning (Andreassen et al., 2021; Steils et al., 2019). Moreover, it has heightened consumers' awareness and concern about other pressing global issues, including climate change, whose detrimental effects are observed in various domains of the earth – weather, oceans, animals, crops, and more (Gade & Payne, 2018; Gooseff et al., 2017; Huang et al., 2017; Liliane & Charles, 2020). Accordingly, other existing behavioral patterns, one of which consumption, are also being re-evaluated.

Governmental agencies and public organizations have initiated and implemented measures to counter damaging effects of certain consumption behaviors. For example, the United Nations have developed the Sustainable Development Agenda 2030 (SDG 12) to promote sustainable consumption and enhance the quality of life for all through the principle of "doing more and better with less" (United Nations Development Program, 2015). What about private, for-profit brands' – can their marketers influence consumers in such a way that the latter are more engaged in pro-environmental behaviors to help tackle the climate challenges? Is that even possible?

From a managerial perspective, understanding a company's role in educating markets and guiding behavioral changes towards sustainable consumption is crucial (White et al., 2019). Previous research has shown that firms' corporate social responsibility (CSR) initiatives influence changes in consumers' attitudes and behaviors (Becker-Olsen et al., 2006), highlighting the central role companies should play in market education to trigger and sustain socially and ecologically beneficial behaviors (Jefkins, 1991). John Elkington (1998) further emphasizes that the success of businesses is now measured by the Triple Bottom Line (TBL) – economic, social, and environmental factors. Could their marketing activities play a role in not only their success, but also in shifting consumers' behaviors for the better?

This research, therefore, aims to investigate the courses of actions marketers from private entities can take to change consumers' behavior towards sustainability within the realm of marketing.

1.2 SUSTAINABILITY MARKETING AND CONSUMER BEHAVIOR

1.2.1 CONSUMPTION

The concept of consumption is a fundamental aspect of marketing and plays a significant role in understanding the dynamics of modern societies. Consumption is understood as the utilization of both durable and non-durable products and services in both the public and private realms to satisfy the needs and wants of individuals and households (Christiano, 1987; Evans, 2019). It encompasses various domains, such as food, clothing, transportation, and involves various stages, including acquisition, usage, and disposal (Geiger et al., 2018). Irrespective of one's perspective, every individual is a consumer (Pinto, 1990; Silva Cruz and Katz-Gerro, 2016).

According to Veblen (2005), consumption is not solely driven by utility maximization but also social status and conspicuous display. Baudrillard (1998, 2012) argues that consumption has transformed into a form of simulation and spectacle, where individuals consume not only for practical purposes but also for symbolic and identity-related reasons. Consumption provides valuable insights into how individuals and societies allocate resources, make choices, and participate in economic and social activities. Furthermore, it sheds light on the intricate relationship between individuals,

products, culture, and the market, highlighting the multidimensional nature of consumption and its broader implications for society.

1.2.2 SUSTAINABILITY

The notion of "sustainability" has become a key concept in various academic disciplines and societal discussions, reflecting the increasing recognition of the urgent need for environmental and social responsibility. In general, sustainability refers to the capacity to meet the needs of the present generation without compromising the ability of future generations to meet their own needs (Holdgate, 1987). It emphasizes the integration of economic development, social equity, and environmental protection, aiming to achieve long-term well-being and balance across economic, social, and ecological systems (Rockström et al., 2009). For businesses, Savitz (2013) sees it as "the art of doing business in an interdependent world," encompassing actions that cause minimal harm to the environment while enriching it. For consumers, it often means living better, consuming less, and reducing their impact on the natural environment (Jackson, 2009).

As such, sustainability encompasses a range of domains, including energy, transportation, agriculture, consumption, and waste management, entailing a transition from a linear, resource-depleting model to a circular economy that promotes resource efficiency, renewable energy sources, and sustainable consumption patterns (Geissdoerfer et al., 2017). Sustainability has gained prominence as societies grapple with the challenges posed by climate change, biodiversity loss, social inequality, and resource

depletion, highlighting the need for systemic changes and collective action to foster a more sustainable future.

1.2.3 SUSTAINABLE CONSUMPTION

Sustainable consumption, a concept focused on environmentally and socially responsible consumer practices, addresses various dimensions and strategies aimed at minimizing harm to the natural environment and conserving natural resources (White et al., 2019). It emphasizes the adoption of behaviors that generate economic, social, and environmental benefits (Chernev & Blair, 2015; Savitz, 2013; White et al., 2019)

Consumers can engage in sustainable consumption practices by undertaking deliberate actions across all domains and stages of consumption. For example, they can intentionally downsize or simplify their initial consumption patterns, prioritizing quality over quantity (Leonard-Barton, 1981; McDonald et al., 2006; Sattari et al., 2018), choosing products and services with eco-friendly characteristics, and reconsidering their procurement and disposal procedures (Luchs & Mooradian, 2012; Pickett-Baker & Ozaki, 2008). Additionally, they can consciously economize resources such as electricity and water during usage (Lin & Chang, 2012; White et al., 2014). At the end of product life cycle, consumers can recycle, reuse, and separate their wastes (White & Simpson, 2013). Alternatively, the "sharing economy", where consumers are encouraged to shift from ownership to accessing certain products and services, exemplified by car sharing and streaming platforms, could be considered.

In this dissertation, we reuse the interpretation of Kollmuss and Agyeman (2002) concerning sustainable, or pro-environmental behaviors, which maintains that these are the behaviors that “consciously seek to minimize the negative impact of one’s actions on the natural and built worlds (e.g., minimize resource and energy consumption, use of non-toxic substances, reduce waste production)”.

1.3 CHALLENGES FOR SUSTAINABLE CONSUMPTION

1.3.1 ATTITUDE-BEHAVIOR GAP

The paradox of consumers expressing positive attitudes towards sustainable consumption while exhibiting non-coherent behavior has become a critical concern in marketing and sustainability literature. Survey reveals that a considerable proportion of the market, approximately 66%, or 73% of millennials, are willing to pay higher prices for sustainable products, signaling a clear demand for greener choices (Gershoff & Frels, 2015; McKinsey Insights, 2023). Despite this apparent approval of environmentally friendly behaviors (Trudel & Cotte, 2009), consumers frequently fail to translate their positive attitudes into consistent sustainable choices (Auger & Devinney, 2007; Gatersleben et al., 2002; Kollmuss & Agyeman, 2002; Young et al., 2010). This discrepancy between consumers stated intentions and actual actions is often referred to as the "attitude-behavior gap"(Carrington et al., 2014; Echegaray & Hansstein, 2017; Katsikeas et al., 2016).

Several factors contribute to the existence of this attitude-behavior gap. On the one hand, consumers are often driven by immediate personal benefits rather than considering longer-term implications for others and the environment (Fischer et al., 2021). Sustainability necessitates a shift in mindset from self-interest to collective well-being, which poses challenges for businesses and policymakers seeking to promote green consumption. On the other hand, the complexity of sustainable behavior change requires comprehensive understanding from a sociocultural perspective, acknowledging that individual consumption choices are influenced not only by personal attitudes but also by broader societal norms and practices (Sahakian & Wilhite, 2014; Shove, 2003). As such, bridging the attitude-behavior gap would require changing the sociocultural landscape, which is not always straightforward.

Scholars have recognized the need to address this attitude-behavior gap (Echegaray & Hansstein, 2017; Moraes et al., 2012). Such studies have explored the role of values, norms, green certification, cognitive biases, and social contexts in shaping sustainable consumption patterns (Auger & Devinney, 2007; Chi et al., 2022; Gatersleben et al., 2002; Hill et al., 2015). Scholars have also emphasized the importance of considering the broader societal and cultural contexts in which consumption takes place. Prominent concepts such as the New Consumption Communities highlight the role of collective action and shared values in driving sustainable consumer behavior (Moraes et al., 2012)

by common sustainability goals and sustainability practices that challenge the status quo (Sahakian & Wilhite, 2014).

1.3.2 GREEN PRODUCTS OR GREENWASHING

There exists a grey area named greenwashing, or “an umbrella term that encompasses a variety of specific forms of misleading environmental communication” (Lyon & Montgomery, 2015). More precisely, “greenwashing is the act of misleading consumers regarding the environmental practices of a company (firm-level greenwashing) or the environmental benefits of a product or service (product-level greenwashing)” (Delmas & Burbano, 2011, p. 66).

The term “greenwashing” originated in the 1980s to describe companies that made exaggerated or false claims about the environmental benefits of their products or services. It was first used by the environmental activist Jay Westerveld in an essay he wrote about the hotel industry's practice of asking guests to reuse towels to save water and energy (Orange, 2010; Philip, 2014). Westerveld noted that while this practice was a positive step, it makes hotels appear environmentally friendly without making significant changes to their operations, all while increasing their revenues in sacrificing guests’ interest. He coined the term “greenwashing” to describe this tactic and other similar efforts by companies to create an environmentally responsible image without deeply committing to sustainability. Since then, the term has expanded to encompass a wide range of

misleading or false environmental claims made by companies in their marketing and advertising efforts to improve their financial performance.

Greenwashing can occur at various levels, such as product level, corporate level, and retailer level. Corporate level greenwashing arises when companies make exaggerated statements about their sustainability practices without evidence, such as claiming their businesses to be “carbon neutral” or have “zero waste.” Retailer level greenwashing develops when retailers provide inaccurate information on sustainable production processes used by their manufacturers when producing goods or services. Finally, product-level greenwashing, as defined by Zhang (2022), involves deceitfully promoting a specific product's environmental sustainability, be it about the product's eco-friendly characteristics (materials, production processes, etc.) or overall environmental impact, such as the vague term “natural” (Orange, 2010). Among these levels, product-level greenwashing tends to have the most significant impact on consumers. Studies have shown that consumers are more likely to classify a product as environmentally friendly while shopping when the product gives cues, potentially misleading, such as color and price that align with their expectations (Ende et al., 2023).

There are two sub-categories of product-level greenwashing, namely executional and claim-based (Zhang, 2022). Executional greenwashing misleads consumers through the visual presentation or packaging of the product, while claim-based greenwashing involves making unverified or untrue claims regarding the product's environmental

attributes or benefits. Both types of greenwashing share the common goal of duping consumers and creating a false perception of environmental responsibility associated with the purchase of these products. This type of greenwashing can lead consumers to believe that they are making environmentally conscious choices when the product may not meet the claimed environmental standards. Therefore, in this paper, it is important to distinguish the notions of “pro-environmental behaviors” and the “purchase of green products.” It is indeed questionable to automatically equate the purchase of certain products or services labeled as “green”, “ecological”, “sustainable”, “pro-environmental”, etc. with pro-environmental/sustainable behaviors (Lyon & Montgomery, 2015).

1.3.3 UNCLEAR ROLES

On the one hand, traditional approaches to promoting sustainable consumption have focused on individual-level interventions such as providing consumers with information through labeling (Chi et al., 2022; Hale, 1996), educational initiatives, empowerment programs (Apaolaza et al., 2018; Dennis et al., 2006; Dickinson et al., 2006; Hertwig & Grüne-Yanoff, 2017; McGregor, 2005; Mont & Dalhammar, 2005), and interventions based on behavioral science insights (e.g., biases, nudges, etc.) (Barker et al., 2021; Birnbacher & Thorseth, 2015; Hertwig & Grüne-Yanoff, 2017; Kalnikaite et al., 2011; Lehner et al., 2016; Thaler & Sunstein, 2008). These approaches aim to influence

individual choices and behaviors by increasing awareness, knowledge, and motivation related to sustainability.

On the other hand, a growing body of research supports the idea that consumption is not solely dependent on individual decision-making but is deeply embedded within broader social practices, spaces, and cultural norms (Sahakian & Wilhite, 2014; Shove, 2003). Scholars who support social practice theory argue that consumption behaviors are influenced by social structures, institutions, and shared practices within society. Some authors have coined the terms “consumer scapegoatism” to address the phenomenon where too much responsibility is placed on individual consumers, and that the sole reliance on green consumerism to treat sustainability issues is unrealistic (Akenji, 2014). In this perspective, understanding and modifying consumption patterns require a collective perspective that considers the larger "system of provision" (Spaargaren, 2003) or the interconnected "system of consumption and production" (Bengtsson et al., 2018). Therefore, for this school of thought, it is crucial to view consumption as a product of societal structures, space, and culture, rather than solely an outcome of individual preferences (Spaargaren, 2003).

Regardless of the answer to this question of whose responsibility, it is important to acknowledge that achieving true sustainability necessitates significant changes in consumption dynamics (Fischer et al., 2021). Marketing, as part of the communication spectrum, thus plays a vital role in catalyzing these changes, either by questioning

existing practices or stimulating societal debate (Bengtsson et al., 2018; Wiedmann et al., 2020). Effective marketing strategies, be it from non- or for-profit entities, could therefore challenge prevailing norms, values, and discourses related to consumption, thereby influencing both individual behaviors and societal structures.

1.4 NOTABLE MARKETING THEORIES AND FRAMEWORKS

It is thus worth questioning which role marketers, especially those from private entities, could play in this complex issue of behavioral change promotion among consumers.

Conventionally, marketing is the process of (1) developing and distributing products and services to fulfill customer needs (Laurent et al., 1994) and (2) obtaining and prompting buyers for a product or service (Kotler & Levy, 1969). Traditional marketing approaches, as highlighted by Csikszentmihalyi (2000), often emphasize stimulating consumption through persuasive techniques and creating a sense of constant desire for products or services. As a result, a consumer culture, where it is believed that happiness and satisfaction are achieved via the unending purchases of products and services, is created (Featherstone, 1990).

While this traditional marketing approach tends towards the encouragement of seemingly endless consumption (Csikszentmihalyi, 2000; Peattie & Peattie, 2009; Swim et al., 2011; Wiedmann et al., 2020), environmental concerns highlight natural limits and underline a need for sustainability (McDonough, 2002; Menon & Menon, 1997; Mont &

Heiskanen, 2015). Indeed, Kotler (2011) argues that these traditional marketing strategies tend to overlook ecological limits and fail to address the long-term sustainability challenges faced by society. Businesses and marketers, therefore, may no longer focus solely on driving sales and encouraging consumption when sustainable consumption is considered (Katsikeas et al., 2016).

Sustainable consumption taken into consideration, other paradigms of marketing, such as ecological communication (Luhmann, 1989), sustainability communication (Godemann, 2011), sustainable marketing (Fuller, 1999), social marketing (Brennan et al., 2014), or transformative marketing (Kumar, 2018), have emerged to promote sustainable consumption via marketing (Adomßent et al., 2014). However, primarily, are marketing and sustainability compatible at all?

1.4.1 MARKETING AND SUSTAINABILITY – FOR OR VERSUS

Marketing plays a crucial role in shaping consumption patterns and influencing consumer behavior. First, marketing activities, such as advertising and promotion, create awareness and familiarity with products and brands, thereby increasing the likelihood of consumption (Kotler & Armstrong, 2008). Effective marketing campaigns can generate a sense of desire, aspiration, and perceived need for certain products or services, influencing consumer preferences and driving consumption (Belk, 2014).

Marketing activities, regardless of their form – commercial or not, all ultimately aim for behavior change (Brennan et al., 2014). While the change targeted by commercial

marketers could be an increase in consumption, that of social markets could be a decrease in the latter, or whatever they deem fit. Irrespective of the marketers' goals, the change could be achieved if it generates value for both the marketers and the consumers. This is also known as the rational economic model, which states that individuals make decisions based on rationality and the desire to maximize their interest. According to this model, individuals weigh the pros and cons, consider situational factors, and select the best option or behavior for themselves at any given moment (Brennan et al., 2014).

Brennan et al. (2014) divides social marketing models into three different levels and their corresponding perspective: micro (individual), meso (organization/institution), and macro (society). Accordingly, they adapted the social-cultural ecological systems model originally developed by Bronfenbrenner (1986). Businesses, as organizations, are of the meso level. In this level, organizations – one of the immediate social environments of individuals, have a central role in creating and sustaining pro-environmental behavior change among consumers (Brennan et al., 2014). Some scholars even maintain that the effects of meso level entities on pro-environmental behaviors change are more profound than those of the micro or macro levels (Reid et al., 2010). Corporate social marketing (CSM), corporate social responsibility (CSR), and social marketing (SM) are exemplary of meso-level social marketing efforts. Consequently, it is hypothesized that businesses' marketing activities could and should influence consumers' behavior, with consideration

for the rational economic model, to set marketing goals and design marketing strategies that make the desired behavior change so valuable that their consumers adopt them.

1.4.2 TRANSFORMATIVE MARKETING

Among the novel paradigms addressing marketing and pro-environmental behaviors, transformative marketing provides the lens through which the question of changing consumer behaviors to be sustainable could be addressed.

Bengtsson et al. (2018) argue that sustainable consumption requires transformative communication that goes beyond merely informing individuals about sustainable choices. It involves engaging in dialogs, encouraging critical reflection, and fostering collective action to challenge the dominant consumerist culture. Wiedmann et al (2020) emphasizes the importance of communication campaigns that highlight the social and environmental consequences of consumption, promoting public awareness and fostering a sense of shared responsibility.

Transformative marketing, as proposed by Kumar (2018), goes beyond the traditional marketing focus on product promotion and consumer behavior change. It aims to actively facilitate positive societal transformations by addressing social, environmental, and economic challenges through marketing activities. In recognizing that the current problems faced by society require fundamental shifts in attitudes, values, and behavior, transformative marketing oversteps conventional marketing approaches by actively facilitating social, environmental, and economic transformations. It thus seeks

to inspire and empower individuals, communities, and organizations to make transformative changes that contribute to sustainable development.

The key premise of transformative marketing is to create a sense of agency and encourage collective action. It involves engaging consumers as active participants in societal change, rather than passive recipients of marketing messages. Through education and engagement, transformative marketing aims to empower consumers to make informed choices, drive demand for sustainable products and services, and influence broader societal change (Adomßent et al., 2014). In the end, transformative marketing can generate a ripple effect that extends beyond the immediate impact of marketing campaigns, leading to long-term transformative outcomes.

The implementation of transformative marketing is based on collaboration and partnerships among various stakeholders, including businesses, governments, NGOs, educational institutions, and consumers. These partnerships enable the co-creation of marketing initiatives that align sustainability goals and leverage collective resources. Therefore, transformative marketing plays a vital role in changing consumers' behaviors.

1.4.3 MARKET EDUCATION

Among existing marketing practices that involve consumers' sustainable behavior change, consumer education plays a pivotal role. Originally, market education entails communicating with consumers about products and services (e.g., preparing the new launches, accelerating the growth of existing products/services, postponing their decline)

(Jefkins, 2012; Varey, 2002). In essence, the idea of market education is the more consumers know about what is being sold to them, the more likely they are to respond to marketing messages (Varey, 2002).

“Learning” in this realm of market education, involves changing the cognitive connections in a person’s mind (Varey, 2002). Therefore, this type of “education” can be bidirectional. Corporation education is the opposite direction, where consumers, via the mechanisms market research and customer complaints, help the institutes to learn, or educate the marketers. In this article, we consider the former, where businesses, via their marketing practices, help consumers reform the mental linkages in their minds.

Recently, the market education concept has evolved to providing consumers with the information, the knowledge, and the skills necessary to make informed choices in their purchasing and/or financial decisions (Adomßent et al., 2014; Apaolaza et al., 2018; Bell & Eisingerich, 2007; Cordero et al., 2020; Hale, 1996; Hira, 2012; Jefkins, 1991; McGregor, 2005; Steils et al., 2019; Vermeir & Verbeke, 2006). Within the context of sustainability, market education equips consumers with the ability to critically evaluate product labels, certifications, and eco-friendly claims made by companies, enabling them to identify truly sustainable products (Horne, 2009). It also empowers consumers to understand the lifecycle of products, encouraging them to opt for durable, recyclable, or biodegradable options (Kikuchi-Uehara et al., 2016). Ultimately, this novel paradigm of market education could foster among consumers a sense of responsibility and

accountability towards the environment, motivating them to take personal action towards sustainability (Dangelico & Vocalelli, 2017).

Effective market education initiatives can be delivered through various channels, including schools, community organizations, and digital platforms. Workshops, seminars, and educational campaigns can be organized to raise awareness about sustainable consumption (Reisch et al., 2016). Educational materials, such as brochures, videos, and online resources, can be made accessible to consumers to enhance their understanding of sustainability issues and solutions (Diamantopoulos et al., 2003). Collaborative efforts between governments, businesses, and NGOs could also help educate consumers and create a culture of sustainability (Steg & Vlek, 2009). These activities fit well into the landscape of transformative marketing. Therefore, market education, by raising awareness and providing education on sustainable choices, has been considered vital for driving behavioral change (Baum & Gross, 2017).

1.4.4 MARKET INTERVENTION

Another remarkable concept to acknowledge is marketing intervention. Marketing intervention can be understood as marketing activities that “seek to influence” or “make changes to” consumer behavior (Varey, 2002, p. 87). Marketing intervention may, indeed, be a part of a market education, or an “area of marketing communications aiming at creating a favorable marketing situation in advance of selling, distribution, advertising and sales promotion” (Jefkins, 2012, p. 103) and an effort to “accelerate the demand for a

product, postponing its maturity and decline” (Varey, 2002). These two comparable concepts differ, but in this paper, they are used interchangeably, as for both, there is often a planned, intentional, and strategic communication operation aiming at actively changing consumer behavior (e.g., a marketing campaign).

Additionally, according to Varey (2002, p. 87), marketing interventions can be educational or promotional. When marketing efforts involve identifying and discussing a problem, thus offering a public service, the marketing intervention can be considered educational. At other times, when the purpose of the intervention is to induce a purchasing action, via a solution that financially favors the marketer’s business over the consumer in the end, the marketing intervention is promotional and/or commercial.

1.4.5 SOCIAL MARKETING

Social marketing goes beyond conventional commercial motives to drive positive societal change. It leverages marketing techniques to promote behavioral shifts that benefit individuals and communities, addressing critical issues such as public health, environmental conservation, and social justice. Kotler and Zaltman (1971) were among the pioneers in conceptualizing social marketing, defining it as “the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research.” This definition emphasizes the strategic

application of marketing principles to catalyze shifts in attitudes and behaviors, transcending mere commercial goals.

At its core, social marketing seeks to educate and engage target audiences about societal challenges and advocate for the adoption of behaviors that yield widespread benefits. Andreasen (1995) underscores the educational component by noting that social marketing draws heavily from academic disciplines such as psychology, sociology, and communication to develop effective campaigns that inform and persuade. This aligns with the above-mentioned concept of market education, wherein consumers are educated, or informed, about products or services to make informed decisions. In the context of social marketing, the emphasis shifts to educating individuals about the consequences of their behaviors on a larger scale, fostering awareness of how personal choices can contribute to or mitigate wider issues.

Furthermore, social marketing extends its transformative influence by operating within a broader systems perspective. Peattie and Peattie (2003) emphasize that social marketing encompasses both macro-level systemic changes and micro-level individual behavioral shifts. This system-based approach underscores how social marketing initiatives are embedded in complex social structures and cultural contexts, aiming to create synergistic changes at multiple levels. For example, a social marketing campaign promoting healthy eating not only seeks to influence individual food choices but also

endeavors to reshape food policies, industry practices, and societal norms related to nutrition.

Consequently, social marketing stands as a paradigm of transformative marketing that surpasses conventional transactional goals by promoting positive societal change. It leverages strategic marketing techniques to educate and persuade individuals about behaviors that contribute to the greater good. Drawing from diverse academic disciplines, it aims to alter attitudes and behaviors while operating within a system-based approach. As society's challenges become more intricate, the role of social marketing in educating, influencing, and catalyzing transformative change remains paramount.

1.4.6 THEORETICAL FRAMEWORKS

Within the broader discourse on using social marketing for positive societal changes, Bauman et al. (2002) propose a hierarchy of effects of a mass media campaign, adapted from the work of McGuire (1984), to evaluate the effectiveness of media campaigns for physical activity promotion in Australia. This framework elucidates the sequential progression of consumer responses from awareness to behavior change.

The adapted model adds an approximate “rule of halves,” acknowledging that the higher the position in the hierarchy, the less success marketers should expect. For example, given 50% of the population are exposed to a certain message (e.g., increase physical activity), in the end, only about 0.78% will have changed and sustained their behavior as desired (e.g., increase and maintain their augmented physical activity). As

such, this model could provide a structured lens through which businesses can strategically analyze their pro-environmental behavior and change marketing campaigns. Therefore, Bauman’s model is used in this article to evaluate the effectiveness of businesses’ marketing interventions to promote pro-environmental behavior among consumers.

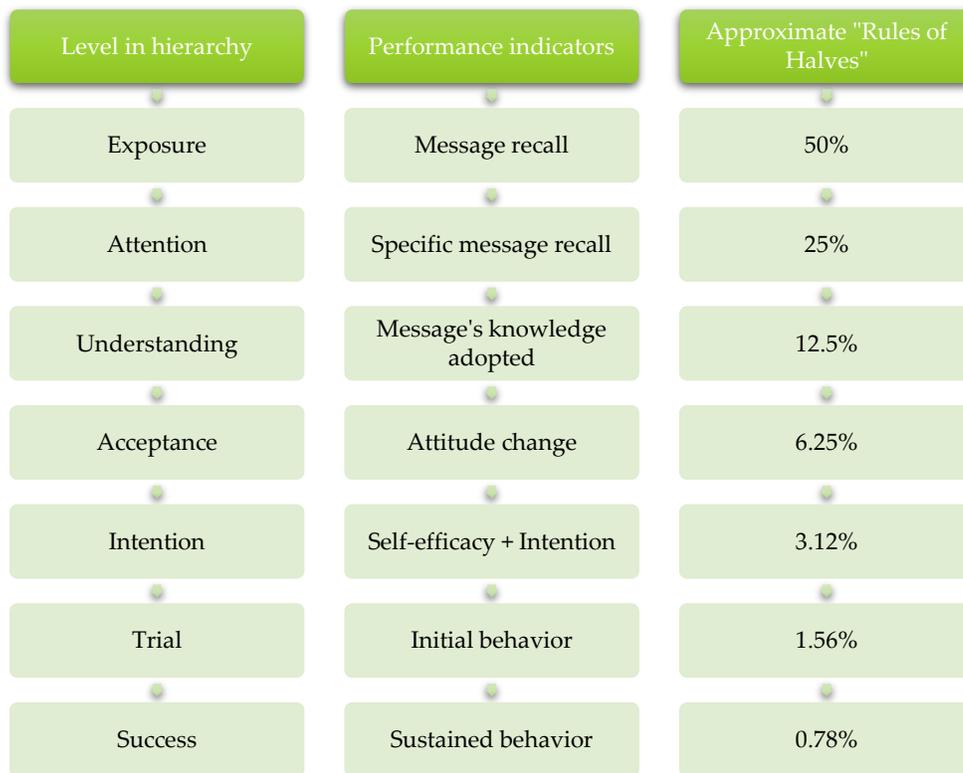


Figure 1 The Australian public Health Partnership Hierarchy of Effects Model, adapted from Bauman et al., 2002.

1.5 GAPS IN THE LITERATURE

In response to the pressing need for sustainable consumption, there has been a surge of interest in novel paradigms and empirical studies examining activities that promote environmentally friendly consumer behavior. This shift has led to a growing

body of empirical research in the marketing literature, investigating various strategies that align with sustainability goals (Katsikeas et al., 2016).

Overall, the number of studies examining interventions to promote pro-environmental behaviors (PEB) is increasing, conducted by various research institutes and organizations worldwide (Abrahamse, 2019; Elf et al., 2021; Steg & Vlek, 2009). Scholars have analyzed distinct types of business interventions using multiple marketing theories, yielding varied impacts on different populations. This growing number of studies and novel paradigms within the field of marketing demonstrates the increasing recognition of the importance of promoting sustainable consumer behavior.

However, despite this growing body of research on changing consumer behavior using marketing, scholars have neglected to take a holistic view of marketing interventions that work. First, existing studies, with various focuses on specific aspects or contexts, lead to a fragmented understanding of what work or not in terms of behavioral change. This fragmented approach limits the development of a comprehensive view of the complex dynamics involved in driving sustainable behaviors (Vermeir & Verbeke, 2006). Second, due to its multidisciplinary nature, which requires insights from various disciplines such as psychology, sociology, marketing, and environmental science, the understanding of changing consumer behavior using marketing is further fragmented (Pickett-Baker & Ozaki, 2008). Third, the diversity of consumer contexts, cultural differences, and situational factors make it challenging to

develop a unified framework that can capture the nuances of changing consumer behavior via marketing means (Dangelico & Vocalelli, 2017).

Accordingly, it becomes necessary to take a holistic approach and analyze marketing interventions that successfully changed consumer behavior and draw a coherent and overall understanding to help for-profit brands with sustainability goals achieve consumers' pro-environmental behaviors via their marketing activities. Therefore, this paper seeks to answer this research question: "What are the marketing actions, backed by empirical findings, can businesses do, in applying marketing concepts, to change consumers' behaviors to be sustainable (or pro-environmental)?"

1.6 RESEARCH OBJECTIVES AND QUESTIONS

This dissertation investigates how for-profit firms can design, communicate, and orchestrate marketing interventions that catalyze durable pro-environmental behavior among consumers. The overall objective is to build and empirically ground an integrated framework that connects upstream market design with midstream social influence and downstream behavior-support tactics, and to evaluate whether the rhetorical and emotional architectures found in award-winning campaigns translate into persuasive, credible, and actionable experiences for audiences. In Chapter 2, the central thesis question is articulated as follows: "What marketing actions, supported by empirical findings, can businesses implement—by applying marketing concepts—to change consumers' behaviors toward sustainability or pro-environmental action?" This

overarching problem motivates three programmatic objectives that are pursued sequentially and cumulatively across Chapters 2, 3, and 4, and integrated in Chapter 5.

The first objective is to synthesize the academic evidence base on firm-led marketing interventions for sustainable consumption through a systematic literature review that follows PRISMA guidance on protocol transparency, search design, and inclusion criteria. This objective clarifies mechanisms and boundary conditions in the extant literature, including the documented prominence of nudges, social norms, incentives, identity-relevant appeals, and the persistent intention–behavior and social desirability challenges. To that end, the review specifies protocol elements (PRISMA-P), inclusion–exclusion rules, and search procedures (PRISMA-S) that ensure reproducibility and completeness.

The second objective is to examine how those theoretically grounded mechanisms manifest in practice by analyzing award-winning campaigns via a computational linguistics pipeline, thereby mapping the language, emotional profiles, and responsibility frames businesses deploy when they attempt to influence sustainable behavior.

The third objective is to assess consumer cognition and affect in response to representative executions, testing whether audiences perceive the intended emotions, how emotion relates to self-reported adoption likelihood, and how open-ended reactions thematically register credibility, feasibility, identity alignment, and agency.

The final objective is to integrate insights across methods and levels into a Transformative Marketing–Social Marketing–Nudge–Co-creation/Co-design (TSM–CD) framework that sequences levers across upstream, midstream, and downstream loci of action.

These objectives give rise to a nested set of research questions. Overall, the dissertation asks the overarching question regarding which empirically supported marketing actions enable businesses to change consumer behavior toward sustainability.

The first set of subsidiary questions (Chapter 2) concerns evidence synthesis: which business-led marketing interventions have produced measurable and academically recognized changes in pro-environmental behavior; which theoretical lenses have guided effective designs; and under what contextual and methodological conditions have effects persisted or attenuated.

Building on this synthesis, the second set of questions (Chapter 3) examines the businesses' perspective in award-winning practice. Specifically, the chapter asks what SLR-identified interventions are enacted in real campaigns; which emotional strategies are most frequently deployed and how they align with theory; how linguistic patterns reflect behavior-change constructs; how agency and responsibility are assigned across individuals, firms, and systems; and how these elements have evolved over time. A computational corpus assembled through web scraping and NLP support the analysis of

discourse, affect, and framing within a set of market communications for sustainable behavior changes.

The third set of questions (Chapter 4) turns to the consumers' perspective. It asks how audiences cognitively evaluate campaign clarity, credibility, and responsibility; which discrete emotions they report and how these align with the corpus-based labels; how mixed affective states relate to stated adoption likelihood and identity alignment; and what themes arise in open-ended narratives that map onto the mechanisms highlighted by the review. A convergent mixed-methods design elicits structured ratings and natural-language reflections to integrate quantitative associations with qualitative explanations.

Chapter 5 integrates the answers to these questions into a layered change architecture that coordinates market design, social influence, friction reduction, and participatory design, thereby specifying when and why sustainable behavior change is credible, desirable, and feasible. In closing the empirical loop from what leading campaigns do and say to how audiences respond and why they report that they would act, the project sets a future research and practice agenda centered on sequencing, heterogeneity, market literacy, and field-based outcomes.

1.7 OUTLINE OF THE DISSERTATION STRUCTURE

The dissertation is organized as a cumulative sequence that moves from evidence synthesis to market practice to audience reception and finally to integration and

implications. Chapter 1 introduces the research problem, delineates key constructs in sustainability marketing and consumer behavior, and motivates a holistic, multi-level approach to behavior change. It frames the central question of which empirically supported marketing actions businesses can take to generate pro-environmental behaviors and previews the need to integrate disciplinary perspectives and consumer contexts.

Chapter 2 conducts a systematic literature review to consolidate the evidence on firm-led marketing interventions for sustainability. The chapter formalizes protocol, inclusion criteria, and search documentation in line with PRISMA extensions to ensure transparency and replicability, and organizes findings across mechanisms such as nudging, social norms, identity appeals, incentives, and education. It also surfaces discordances and boundary conditions—such as the attitude/intention–behavior gap, social desirability bias, longevity of effects, and rebound versus spillover—that inform subsequent empirical designs. The review concludes by specifying theoretically and managerially salient opportunities that the empirical chapters address.

Chapter 3 transitions from theory to practice by assembling and analyzing a corpus of award-winning sustainability campaigns. It employs a web-scraping and NLP pipeline to examine lexical patterns, topic structures, affective profiles, and attribution of agency across actors, thereby mapping how businesses operationalize behavior-change mechanisms in market communication. The chapter answers five research questions

concerning mechanisms enacted in practice, emotional strategies, linguistic markers of persuasion, responsibility framing, and temporal evolution. The analyses show that norms mobilization and transformative marketing dominate the repertoire, with co-creation/co-design comparatively underused despite their potential to secure legitimacy and local fitness.

Chapter 4 centers the audience by using a convergent mixed-methods design in which participants view representative campaign executions, provide structured emotion and adoption ratings, and offer open-ended reflections. This chapter evaluates whether intended emotions are perceived, how emotion profiles relate to adoption likelihood, and how audiences narrate credibility, feasibility, identity alignment, and agency. These diagnostics connect the language and affective architectures identified in Chapter 3 to mechanisms of persuasion at the consumer level in Chapter 4, yielding design-relevant guidance for campaign development.

Chapter 5 integrates insights across the program to articulate a Transformative Marketing Pathway to Sustainable Consumer Behavior Change that coordinates upstream market architecture, midstream social marketing, downstream nudges, and participatory co-creation/co-design.

The synthesis specifies that market architecture should make sustainable options normal and easy; that social marketing should render those options socially legible and identity-congruent; that nudges should reduce point-of-choice friction in affectively

consonant ways; and that co-creation should surface local constraints and build capability and legitimacy. The chapter also closes with a forward-looking agenda, along with research agendas, emphasizing rigorous behavioral measurement, governance devices that align descriptive norms, and iterative audits linking emotion, feasibility, and identity alignment to adoption trajectories.

2 CHAPTER 2: SYSTEMATIC LITERATURE REVIEW (PROJECT 1)

2.1 METHODOLOGY

2.1.1 ON SYSTEMATIC LITERATURE REVIEW

Research developments in social sciences are blossoming (Yavuz, 2022). Nevertheless, such developments have generated projects with similar concepts that are phrased differently regarding definitions, theoretical frameworks, research questions, results, etc. This manifoldness of the extant literature, therefore, complicates the assessment of the target knowledge's state-of-the-art. Conventional literature review, as helpful as it can be in helping researchers identify apparent information gaps, can be critically incomplete in the evaluation of aforesaid knowledge.

In fact, submissions of literature reviews, especially in the field of public health, are usually returned to authors without additional review because they are not systematic (Robinson & Lowe, 2015). The reason that classical literature reviews are insufficient for contemporary journals, according to Robinson and Lowe (2015), is that they are prone to be incomprehensive, predisposed to biases of reviewers, and rarely considerate of the variances of quality among studies selected for analysis. As a result, to better elucidate the landscape of a specific research field, a different approach to reviewing existing literature should be discussed.

Up to 2019, forty-eight different types of review, categorized into seven families, have been typologized among the medical sciences literature (Sutton et al., 2019). Among

these types, “systematic search and review”, combining the robustness of an exhaustive search protocol and a critical evaluation of empirical findings to answer specific research questions, is considered to produce the “best evidence synthesis” (Grant & Booth, 2009).

This type of review examines various sorts of study designs and are often based on predefined protocols (e.g., PRISMA) (Moher et al., 2009; Page et al., 2021), which includes documentation of the review process, criteria for inclusion/exclusion of studies, tools employed in the study (Klein & Müller, 2020; Robinson & Lowe, 2015). Accordingly, such reviews yield transparent, replicable, and evidence-based results. It is worth noting that this kind of review is often interchangeably referred to as “systematic reviews”, even though in health sciences, the latter, typologically speaking (Grant & Booth, 2009), only assesses randomized controlled trials. Hereinafter, this paper refers to this type of review as the systematic literature review (SLR).

SLRs, because of their comprehensive search strategies, have helped researchers discover results that challenges previously established and conventional beliefs (Robinson & Lowe, 2015). For example, in the medical field, these SLR-based discoveries include “no significant association was found between cardiovascular diseases and saturated fat intake” (Foster & Wilson, 2013) and “higher levels of vitamin D do not particularly improve any one disease’s conditions” (Zheng et al., 2013). The following section elaborates the processes of the SLR method.

SLRs were first introduced in the field of health sciences (Williams et al., 2021), where evidence-based theoretical understanding is fundamental to medical applications. To aid health practitioners in their decision-making concerning the large and sometimes inconsistent findings in published studies (Osareh, 1996), the United Kingdom’s National Health Service called for an accessible, holistic, and systematic presentation of studies pertinent to a specific medical question.

Initially judged relevant only in medical sciences (Petticrew, 2001), SLRs have gradually been adopted in other fields, including management (Williams et al., 2021), a closely related field of marketing and considered a late adopter of SLR (Briner & Denyer, 2012), ever since their introduction to the growing and fragmented field by Tranfield et al. (2003).

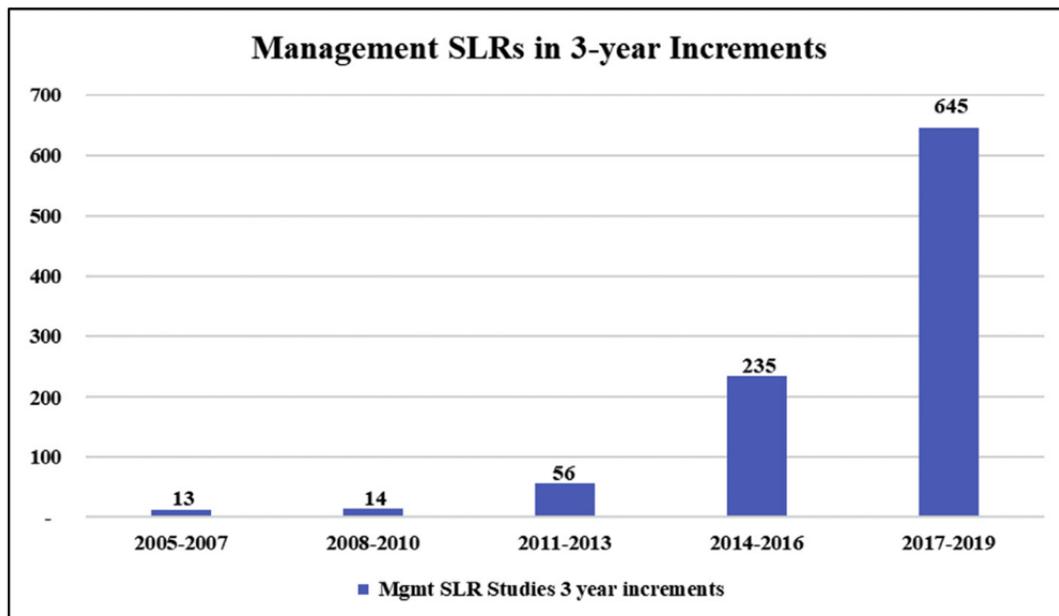


Figure 2 Number of SLRs 2005 - 2019 in three-year increments – reproduced from Williams et al. (2021)

Essentially, a SLR is a type of review conducted to identify all studies relevant to a particular research question and predefined criteria (Nightingale, 2009), synthesize found evidence (Davies, 2019), and minimize biases by reviewers (White & Schmidt, 2005). Williams et al. (2021) observed four essential principles of SLRs: (1) are clearly focused on an established research question, (2) include a transparent and explicit plan of search that is exhaustive and replicable – often via a guideline, including but not limited to PRISMA (Moher et al., 2009; Page et al., 2021), ENTREQ (Tong et al., 2012), eMERGe (France et al., 2019), RAMESES (Wong et al., 2013a, 2013c), (3) predefine inclusion/exclusion criteria, and (4) synthesize included studies and determine knowledge gaps. This way, SLRs represent a secondary study based on primary studies, connecting the individual snapshots of understanding into one overarching video and revealing insight hidden “under the rocks” (Williams et al., 2021).

Compared to traditional literature reviews, SLRs are deemed more objective and rigorous. First, while the former is focused on providing foundations for hypotheses and thus prone to “cherry-picking” articles, the latter aims to objectively assess all applicable studies (Briner & Denyer, 2012; Petticrew, 2001). Second, LRs do not transparently report the search and selection plan and processes as is the case for SLRs. Finally, while the discovery and inclusion of studies in LRs are random, that of SLRs follows systematic and precise policies that are predefined and applicable to all individual studies. As a

result, LRs can be regarded as a “news story”, while SLRs a “documentary” (Williams et al., 2021).

The table below, reproduced from Robinson and Lowe (2015), summarizes the main differences between a typical literature review and a systematic literature review.

| Table 1: Literature reviews vs systematic reviews. | | |
|--|-------------------------------------|---|
| Literature review | Methodological stage | Systematic review |
| Introduces context and current thinking, often without a specific question, is general and covers several aspects of a topic. | Focus of review | Uses a precise question to produce evidence to underpin a piece of research. A stand-alone piece of research, it should be conducted prior to undertaking further research, particularly in higher degree theses. |
| Finds papers through a fairly random process, usually searching only a few databases. Use of grey literature common, but not usually systematic. | Methods for data collection | Searches of several specified databases using precise search terms; a similar systematic search of grey literature sometimes included, depending on the question. |
| Papers are read, ‘take home’ messages used in the review. | Methods for data extraction | Data extraction tool used to identify precise pieces of information; two or more researchers undertake data extraction. |
| Anything up to 150 papers or more. | Number of papers included in review | Usually less than 50 papers; often fewer than 10. |
| Writer interprets the meaning of the results. | Methods for data analysis | Recognised, referenced, methods for data analysis; includes analysis of methods, rigour of conduct of research, strength of evidence, and so on. |
| Prose paper, occasionally supported with diagrams. | Methods for data presentation | PRISMA/CONSORT or similar chart/table of included papers. |
| Not suitable for Journal publication. | Publication | Might be suitable for Journal publication. |
| Actions/directions informed by evidence of various kinds drawn from included papers. | Outcome | Actions/directions are based on evidence from reviewed papers. |

Figure 3 Main differences between literature review and systematic literature review – photo reproduced from (Robinson and Lowe, 2015)

Chapman (2021) conducted a study of the characteristics of systematic (literature) reviews in social sciences and found intriguing patterns. The author checked these studies’ methodology, especially in terms of search strategy, inclusion/exclusion criteria report, period investigated, references to guidelines, databases searched, number of studies sought for retrieval and included in the final sample. Sibling fields of marketing,

including business, economics, and communications, are evaluated and discussed. Within business and economics, the majority of SLRs mention keywords, search terms, inclusion/exclusion criteria, dates, and number of results found per database. However, only a minor part reference guidelines (e.g., PRISMA, journal's guidelines, etc.), indicating a room for improvement regarding searches' comprehensiveness, inclusion/exclusion criteria, and transparent reporting for the field. In communications, only three SLRs were identified, and all were published in 2019. These studies, despite providing search strategies, databases used, inclusion/exclusion criteria, and additional studies retrieval technique, do not reference any guidelines. As a result, SLRs seem to be in its rudimentary stage in the field of communications.

Several guides have been developed to help authors create SLRs, including but not limited to that of Okoli (2015) or Nightingale (2009). In all these guides, the authors mostly recommend the steps of SLRs as: (1) identify the purpose of the review, (2) draft a protocol that are explicit, comprehensive, and reproducible, (3) search the literature, (4) extract data, (5) appraise the quality of the data, (6) synthesize the studies, and (7) write the review.

2.1.2 WHY SLR?

As stated previously, empirical studies conducted at research institutes and various organizations examining interventions to promote pro-environmental behaviors (PEB) are continuously growing (Abrahamse 2019; Elf et al. 2021a; Steg and Vlek 2009).

Scholars have analyzed individual types of marketing interventions, showing various impacts and results, positive or not. As such, to figure out marketing activities that can create and sustain pro-environmental behavior change, there is a need to take a holistic view of these research projects. Are there any studies that have been done that show marketing interventions from businesses can facilitate pro-environmental behavior change? What types of marketing interventions have created behavioral changes? Were there any marketing theories that guided successful intervention programs, leading to sustainable pro-environmental behavior change? What are the insights that businesses can draw from these studies to apply to their own marketing campaigns for consumers' behavior change?

To answer these questions, a systematic literature review (SLR) is considered the most appropriate method. In essence, an SLR is a type of review used to identify all knowledge relevant to a defined research question and crafted criteria (Nightingale, 2009), synthesize retrieved evidence-based documentation (Davies, 2019), and reduce reviewers' biases (White & Schmidt, 2005). Being based on predefined protocols and guidelines (e.g., PRISMA), SLRs extensively document the review procedures, including but not limited to the comprehensive search strategies, review execution process, and criteria for inclusion/exclusion. In aiming to be evidence-based, transparent, and replicable (Sutton et al., 2019; Yavuz, 2022), SLRs have often uncovered "hidden"

knowledge that is contrary to established beliefs (Robinson & Lowe, 2015; Williams et al., 2021).

Nevertheless, such a SLR summary of empirical evidence relating to what businesses can do, in applying marketing concepts, to catalyze sustainable consumption behaviors, to the authors' knowledge, has not yet been created. Therefore, to investigate the existing empirical findings on businesses' marketing actions that can promote pro-environmental behavior change among consumers, this paper aims to create a SLR to answer the mentioned research question. It is worth noting that SLR is named as such hereinafter to avoid confusion with "systematic reviews", which in their strictest sense only assess randomized controlled trials (Grant & Booth, 2009).

This SLR follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement (Moher et al., 2009; Page et al., 2021). PRISMA is a credible, well-established, widely recognized tool for conducting systematic literature reviews, offering explicit guidelines and steps for identifying, selecting, and synthesizing pertinent studies (Liberati, 2009; Page et al., 2021). By adhering to PRISMA guidelines, researchers can ensure that their systematic literature review is reproducible by other scholars, allowing for comparison and validation of results across different studies, contributing to the cumulative knowledge in the field (Moher et al., 2009; Page et al., 2021). There exist other protocols, such as ENTREQ (Tong et al., 2012), eMERGe (France et al., 2019), or RAMESES (Wong et al., 2013b), which offer valuable guidelines for

conducting systematic literature reviews in other fields. Nevertheless, PRISMA's widespread adoption and acceptance in the research community make it the preferred choice for this SLR in the field of marketing and management, considering the aim of creating a synthesis of existent empirical findings from which future research can continue.

2.1.3 PROTOCOL (PRISMA-P)

PRISMA-P is an extension of the PRISMA statement, focusing on protocols for SLRs (Moher et al., 2009; Page et al., 2021; PRISMA-P Group et al., 2015). In the context of SLRs, a protocol is a detailed plan or description of how a SLR will be conducted, including the research question, search strategy, inclusion and exclusion criteria, data extraction methods, and analysis plan. It helps ensure transparency and rigor in the review process. PRISMA-P can help researchers and authors of SLRs ensure that their protocols are well-documented and adhere to best practices in research reporting.

The following are extracted from a document named PRISMA-P, which fully documents the protocol of this SLR.

2.1.3.1 INCLUSION CRITERIA

English-written research articles, published at any time up to the writing of this article – June 2022, in peer-reviewed journals in the fields of marketing and management, are included. Additionally, they must be published in journals that are included in (1) the Web of Science's Journal Citation Report (2022), which "includes only journals that

demonstrate high levels of editorial rigor and best practice”, and (2) SCIMAGO’s rankings for the subject categories of “Strategy and Management” or (3) SCIMAGO’s rankings for the subject categories of “Marketing”.

2.1.3.2 EXCLUSION CRITERIA

“Grey literature,” or research materials that are not published through peer-reviewed journals, is not covered in this review. Accordingly, reports, theses, conference proceedings, working papers, government documents, technical specifications, and other sources of information that are often produced by agencies, research institutes, organizations, or individuals, are included. In addition, research articles not written in English are excluded.

2.1.4 SEARCH DESIGN (PRISMA-S)

PRISMA-S, or PRISMA extension for searching, is a complement to the PRISMA statement (Rethlefsen et al., 2021). It provides authors, editors, and reviewers with a checklist of items to ensure that the SLR’s search process is fully documented.

The following are extracted from a document named PRISMA-S, which records the search process of this SLR in full.

2.1.4.1 DISSECTION OF THE RESEARCH QUESTION

The first step in designing the search involves dissecting the research question into smaller keywords. This step is necessary for creating search queries to be run in various research databases. There are numerous frameworks available for structuring research

questions, with approximately 38 different frameworks identified in the literature (Booth et al., 2019).

In our study, we adopted the ECLIPSE (Expectation, Client group, Location, Impact, Professional, Service) framework due to its relevancy and applicability in the field of health management and policy. Developed by health policy librarians, the ECLIPSE framework provides a systematic approach for identifying research gaps, conducting literature reviews, and formulating research questions in the healthcare domain (Wildridge & Bell, 2002). While our study is in the marketing and management fields, we recognize that the ECLIPSE framework's emphasis on management-related aspects can contribute to the formation of our research question via its well-structured approach.

Our research question is formulated as follows: "What are the marketing actions, backed by empirical findings, can businesses do, in applying marketing concepts, to change consumers' behaviors to be sustainable (or pro-environmental)?" Using the ECLIPSE framework, we build the preliminary search terms as shown in the table below.

Table 1 ECLIPSE Framework for the SLR.

| Expectation | Client group | Location | Impact | Professionals | Service |
|--|---|--|--|---|--|
| Expectations (improvement, information, or innovation) | Client group (at whom the service is aimed) | Location (where is the service located?) | Impact (outcomes) | Professionals (who participates in providing/improving the service) | Service (for which service is you looking for information or concepts relating to the study) |
| Sustainable behavioral changes | Consumer or Market | Companies' policies or practices | Adopting and sustaining environmentally friendly behaviors | Companies or marketers | Market education or market literacy |

2.1.4.2 IDENTIFICATION OF ALL POTENTIAL KEYWORDS

2.1.4.2.1 VIA NAÏVE SEARCH

Grames et al (2019) developed an R package, *litsearchr*, to help with both identifying potential keywords and compiling search queries. The steps involved in identifying search terms with this tool are as follows. (1) Design a naïve search to capture a list of highly relevant results. The naïve search, which means preliminary search conducted without employing advanced search strategies or techniques, should be conducted in at least two supported databases, and exported following the paper's guideline. (2) These results will be imported into *litsearchr* for deduplication and keywords extraction. (3) Using the keyword co-occurrence network, the tool will analyze and extract a list of potential keywords. The researcher will manually select key terms. (4) Based on the selected keywords found from the steps above and by the researcher, *litsearchr* will help compile Boolean searches to conduct further searches.

Accordingly, using the ECLIPSE framework for generating research questions and a dictionary/thesaurus (Merriam-Webster, Inc, 2016), a naïve search strategy is created (see PRISMA-S).

2.1.4.2.2 VIA WORD FREQUENCY ANALYSIS

With the aid of the tool WordFreq, a word frequency analyzer (Clark et al., 2020), we determine additional keywords from the naïve search designed. The tool helps analyze the most common phrases/words (uniquely, title, abstract, keywords) and how

often they appear in the imported library. We select the most frequent and pertinent items to add to the keywords list (see PRISMA-S).

2.1.4.2.3 VIA BENCHMARK ARTICLES

Some articles inspired our initial interest in the subject (Fischer et al., 2021; White et al., 2019). Therefore, we manually scan them for other relevant keywords. We subsequently discover the supplementary principal terms and arrange them according to the ECLIPSE framework.

2.1.4.3 FINAL SEARCH STRATEGY

In combining the words identified from the naïve search from large multidisciplinary bibliographic databases (Web of Science and SCOPUS), WordFreq, and benchmark articles, the final search terms are presented (see PRISMA-S).

2.1.5 DATABASE SEARCH RESULTS

In summary, distinct types of searches in different databases with their results can be found in the table below.

| As of June 26th, 2022 | | | | |
|--------------------------|--|------------------|-----------------------------|------------|
| | Title | Title + Abstract | Title + Abstract + Keywords | All fields |
| SCOPUS | 44 | 14,983 | 20,147 | 1,501,144 |
| Web of Science | 30 | 9,303 | | |
| ProQuest | 34 | 7680 | | |
| Business Source Complete | 10 | 3200 | 0 (ERROR) | |
| Emerald Insight | 0 (ERROR) | 0 (ERROR) | 0 (ERROR) | 0 (ERROR) |
| Cambridge Core | 0 (ERROR) | | | |
| OECD | 0 (ERROR) | 0 (ERROR) | | |
| JSTOR | 0 (ERROR) | 0 (ERROR) | | |
| | | | | |
| | Feature not present/Non-applicable (e.g., character limit) | | | |

Figure 4 Summary of the database searches.

To optimize the comprehensiveness and rigor of our SLR, we need to prioritize the platforms that can perform our designed search terms in as many fields as possible. SCOPUS, being able to perform our search query on all the Title, the Abstract, and the Keywords fields and producing 20,147, has its results taken for further analysis.

We then filter the results following PRISMA-P. Consequently, only documents whose publications are found in the Web of Science Core Collection’s Journal Citation Report (which includes Science Citation Index Expanded™ - SCIE, Social Sciences Citation Index™ - SSCI, Arts & Humanities Citation Index™ - AHCI, and Emerging Sources Citation Index™ - ESCI) (Web of Science Group, 2022) and SCIMAGO’s rankings, either for the subject category of “Strategy and Management”(Scimago, 2022b) or “Marketing” (Scimago, 2022a), are included. They are considered included if their publication sources exactly match the name of the publication in those rankings. The inclusion in both Web of Science and SCIMAGO’s rankings helps ensure that the

articles offer insights not only from an environmental perspective alone (often the case for those included only in WOS) but also that of marketers and/or managers. Specifically, with the goal of bringing consumer behavior change via marketing activities by for-profit brands, what have past articles demonstrated to work?

| SOURCE TITLE | WOS CORE COLLECTION 2022 | | SCIMAGOJR MARKETING 2021 | | SCIMAGOJR STRATEGY & MANAGEMENT 2021 | | INCLUDED IN BOTH |
|--|--------------------------|-----|--------------------------|---------|--------------------------------------|---------|------------------|
| | JCR2022 WOS | YES | RANKING | H-INDEX | RANKING | H-INDEX | YES/NO |
| Journal Of Cleaner Production | 427 | YES | NA | NA | Q1 | 232 | YES |
| Business Strategy And The Environment | 105 | YES | NA | NA | Q1 | 115 | YES |
| European Journal Of Marketing | 92 | YES | Q1 | 110 | NA | NA | YES |
| Journal Of Retailing And Consumer Services | 80 | YES | Q1 | 104 | NA | NA | YES |
| Journal Of Business Research | 65 | YES | Q1 | 217 | NA | NA | YES |
| International Journal Of Consumer Studies | 61 | YES | Q2 | 77 | NA | NA | YES |
| Journal Of Fashion Marketing And Management | 43 | YES | Q2 | 56 | NA | NA | YES |
| Journal Of Services Marketing | 41 | YES | Q1 | 111 | NA | NA | YES |
| Corporate Social Responsibility And Environmental Management | 35 | YES | NA | NA | Q1 | 82 | YES |
| Journal Of Product And Brand Management | 34 | YES | Q2 | 90 | Q1 | 90 | YES |
| International Journal Of Bank Marketing | 32 | YES | Q2 | 87 | NA | NA | YES |
| Supply Chain Management | 28 | YES | NA | NA | Q1 | 125 | YES |
| International Marketing Review | 27 | YES | Q1 | 96 | NA | NA | YES |
| Journal Of Marketing Management | 26 | YES | Q1 | 75 | Q1 | 75 | YES |
| Journal Of Macromarketing | 24 | YES | Q2 | 58 | NA | NA | YES |
| Journal Of Knowledge Management | 23 | YES | NA | NA | Q1 | 124 | YES |
| Qualitative Market Research | 23 | YES | Q2 | 59 | NA | NA | YES |
| Harvard Business Review | 21 | YES | NA | NA | Q1 | 190 | YES |
| International Journal Of Production Research | 21 | YES | NA | NA | Q1 | 153 | YES |
| Journal Of Service Management | 21 | YES | NA | NA | Q1 | 69 | YES |
| Journal Of Product Innovation Management | 20 | YES | NA | NA | Q1 | 154 | YES |
| Industrial Marketing Management | 18 | YES | Q1 | 147 | NA | NA | YES |
| International Journal Of Hospitality Management | 18 | YES | NA | NA | Q1 | 136 | YES |
| | 1285 | | | | | | |

Figure 5 Summary of the filtering of preliminary searches according to the WOS and SCIMAGO's rankings.

Following this list, the total number of articles found from database searching included for further analysis is 1285 results as of the cut-off day of June 24th, 2022.

This filtering process is redone later after the identification of additional articles from the snowballing process, which is documented below.

2.1.6 HANDSEARCHING

Through additional scanning of references found during the search process and serendipitous discovery during unrelated searching, the authors identified an additional

article. It satisfies all the stipulated criteria delineated in the PRISMA-P. Consequently, the article is incorporated into the final sample.

2.1.7 SNOWBALLING OF SELECTED ARTICLES

Snowballing, considered a gold standard in comprehensive literature review, is a technique that involves exploring both the references of a set of initial articles and the articles that cite them for potentially relevant articles (Greenhalgh & Peacock, 2005). This iterative method assists in uncovering further pertinent papers that might have been missed by conventional database searches. As a result, we employ this method to prevent omitting any relevant articles.

Specifically, using SCOPUS to analyze the initially accepted eleven articles found (of which twelve from database search and one from hand search), we identified their 836 references and 291 references that cited them. The cut-off date for the snowballing process is November 1st, 2023. These documents are then scanned using the PRISMA-P protocol to uphold the same standards as those found via database searching. Specifically, their inclusion Web of Science Core Collection's Journal Citation Report (Web of Science Group, 2022) and SCIMAGO's rankings, either for "Strategy and Management" (Scimago, 2022b) or "Marketing" (Scimago, 2022a) categories. They are included if their publication sources exactly match the name of the publication in those rankings.

After this filtering process, 91 out of 291 documents citing the initial 11 articles and 278 out of 836 references of the foundational items are kept. Thirty-six articles are

duplicates of preliminary 1285 found via database search. As a result, we identified an additional 333 articles after the snowballing process for further analysis.

2.2 RESULTS

PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers, and other sources.

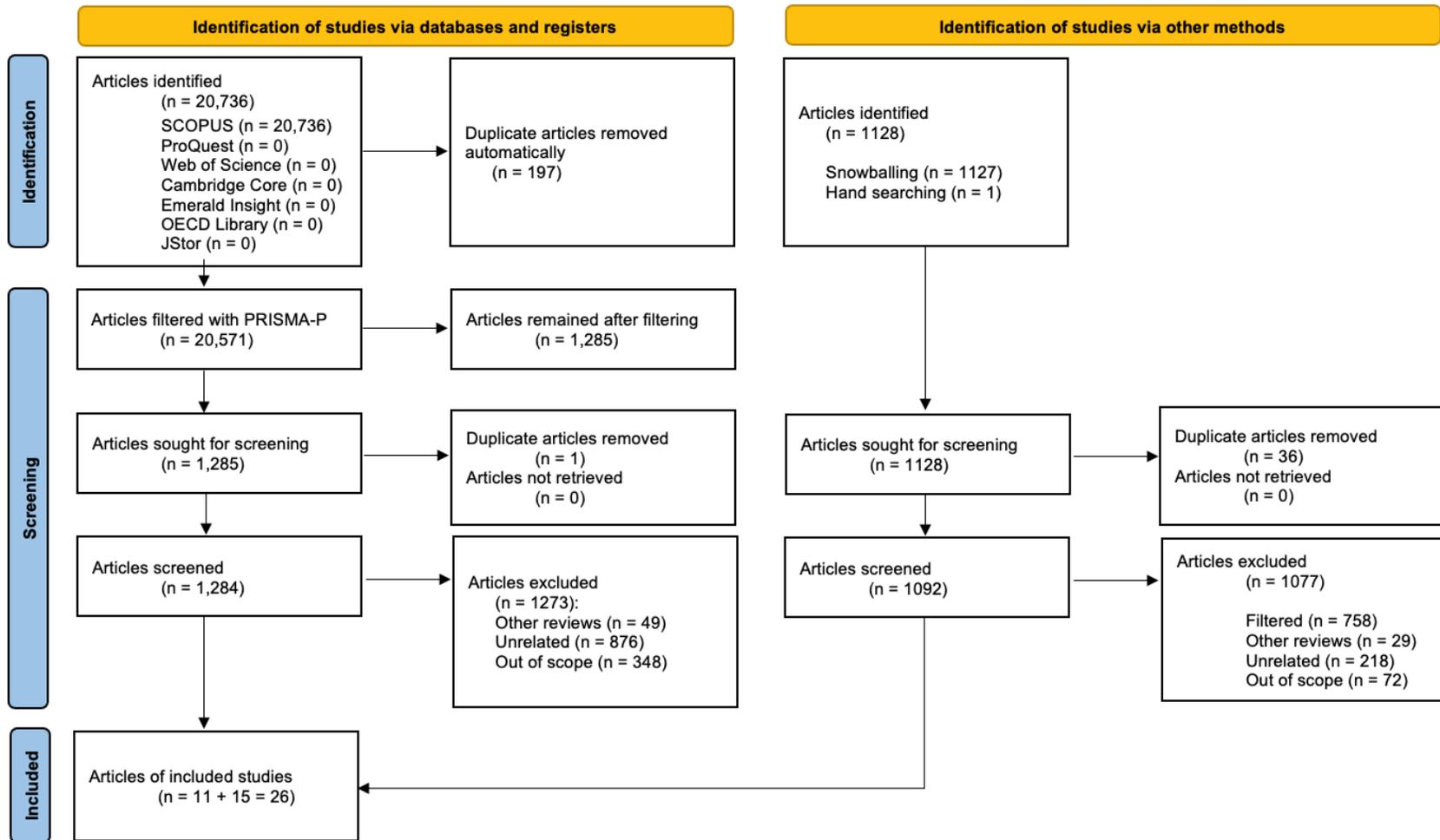


Figure 6 PRISMA flow chart of the integral search process.

2.2.1 INCLUDED ARTICLES IN THE FINAL ANALYSIS

The following table summarizes the main characteristics of the included articles. The hierarchy of effects level and empirical type are explained below.

Table 2 List of included articles.

| | Author (Year) | Title | Sustainability domain | Location | Methods | Number of studies | Hierarchy of effects level | Empirical type |
|---|-------------------------------|---|------------------------------|-------------------------------|--|--------------------------|-----------------------------------|-----------------------|
| 1 | Armstrong Soule et al. (2022) | Signaling Nothing: Motivating the Masses with Status Signals That Encourage Anti-Consumption | Anti-consumption | Online | Social media data analysis, Online experiment | 3 | Intention | Tester |
| 2 | Balderjahn et al. (2023) | The Effectiveness of Consume-less Appeals in Social Marketing | Grocery shopping | Germany | Field experiment | 1 | Trial | Qualifier |
| 3 | Boenke et al. (2022) | Who can nudge for sustainable development? How nudge source renders dynamic norms (in-)effective in eliciting sustainable behavior | Meat consumption | Germany, Switzerland, Austria | Online experiment | 1 | Intention | Qualifier |
| 4 | Elf et al. (2021) | Above and beyond? How businesses can drive sustainable development by promoting lasting pro-environmental behaviour change: An examination of the IKEA Live Lagom project | Household behaviors | UK, Ireland | Pilot study, Field study | 3 | Success | Tester |
| 5 | Filimonau et al. (2017) | 'Nudging' as an architect of more responsible consumer choice in food service provision: The role of restaurant menu design | Food service provision | UK | Field experiment | 1 | Understanding | Qualifier |
| 6 | Kidwell et al. (2013) | Getting liberals and conservatives to go green: political ideology and congruent appeals | Recycling | USA | Online experiment, Field experiment | 4 | Success | Qualifier |
| 7 | Kim et al. (2020) | Consumer perspectives on household food waste reduction campaigns | Food waste | Australia | Co-design session, Online survey, Fridge photo audit | 3 | Understanding | Expander |
| 8 | McGouran and Prothero (2016) | Enacted voluntary simplicity – exploring the consequences of requesting consumers to intentionally consume less | Consumer culture | Ireland | Phenomenology, Autoethnography | 1 | Trial | Qualifier |

| | Author (Year) | Title | Sustainability domain | Location | Methods | Number of studies | Hierarchy of effects level | Empirical type |
|----|---------------------------------------|--|------------------------------|-------------------------------------|--|--------------------------|-----------------------------------|-----------------------|
| 9 | Mirosa et al. (2018) | Consumers' Behaviors and Attitudes toward Doggy Bags: Identifying Barriers and Benefits to Promoting Behavior Change | Food waste | New Zealand | Survey, Focus group, Quasi-Experiment | 2 | Trial | Expander |
| 10 | Morgan et al. (2018) | 'I prefer 30°?': Business strategies for influencing consumer laundry practices to reduce carbon emissions | Household behaviors | Belgium, Denmark, France, Italy, UK | Mixed-methods approach | 1 | Understanding | Expander |
| 11 | Mulcahy et al. (Mulcahy et al., 2020) | "Game on!" Pushing consumer buttons to change sustainable behavior: a gamification field study | Household behaviors | Australia | Mixed-methods approach | 1 | Success | Expander |
| 12 | Mulcahy et al. (2021) | Designing gamified apps for sustainable consumption: A field study | Household behaviors | Australia | Field experiment | 1 | Success | Expander |
| 13 | Nicolau et al. (2022) | Explaining the willingness of consumers to bring their own reusable coffee cups under the condition of monetary incentives | Reusables | USA | Online survey | 1 | Trial | Qualifier |
| 14 | Phipps et al. (2011) | From right to responsibility: sustainable change in water consumption | Household behaviors | Australia | Case study, Interview | 1 | Success | Expander |
| 15 | Ratay and Mohnen (2022) | Motivating consumer-to-business smartphone returns: Evidence from a factorial survey experiment | Waste management | Germany | Factorial survey experiment | 1 | Intention | Qualifier |
| 16 | Sandhu et al. (2021) | Environment friendly takeaway coffee cup use: Individual and institutional enablers and barriers | Waste management | Australia | Interview, non-participant observations | 1 | Understanding | Qualifier |
| 17 | Septianto et al. (2020) | Thanks, but no thanks: The influence of gratitude on consumer awareness of food waste | Food waste | Online | Online experiment | 3 | Intention | Expander |
| 18 | Su et al. (2022) | Sustainable marketing innovation and consumption: Evidence from cold chain food online retail | Online food retail | Korea | Online experiment | 1 | Trial | Qualifier |
| 19 | Tarabashkina et al. (2022) | Encouraging product reuse and upcycling via creativity priming, imagination and inspiration | Waste management | Australia | Online experiment | 3 | Trial | Builder |
| 20 | Trudel et al. (2016) | The Recycled Self: Consumers' Disposal Decisions of Identity-Linked Products | Waste management | USA | Laboratory experiment, Online experiment | 7 | Understanding | Qualifier |
| 21 | Van Herpen et al. (2021) | Take it or leave it: How an opt-out strategy for doggy bags affects | Food waste | Netherlands | Laboratory experiment, Online experiment | 5 | Trial | Tester |

| | Author (Year) | Title | Sustainability domain | Location | Methods | Number of studies | Hierarchy of effects level | Empirical type |
|----|--------------------------|---|------------------------------|-----------------|---|--------------------------|-----------------------------------|-----------------------|
| | | consumer food waste behavior and restaurant evaluations | | | | | | |
| 22 | White and Simpson (2013) | When do (and don't) normative appeals influence sustainable consumer behaviors? | Waste management | Canada | Laboratory experiment, Field experiment | 4 | Intention | Qualifier |
| 23 | White et al. (2014) | The Motivating Role of Dissociative Out-Groups in Encouraging Positive Consumer Behaviors | Conservation | Canada | Field experiment, Laboratory experiment | 4 | Intention | Expander |
| 24 | Whittaker et al. (2021) | 'Go with the flow' for gamification and sustainability marketing | Household behaviors | Australia | Cross sectional | 1 | Intention | Expander |
| 25 | Whittaker et al. (2021) | Reward-based or meaningful gaming? A field study on game mechanics and serious games for sustainability | Household behaviors | Australia | Field experiment | 1 | Intention | Expander |
| 26 | Young et al. (2018) | Sustainable retailing - influencing consumer behaviour on food waste | Food waste | UK | Quasi-Experiment | 1 | Trial | Qualifier |

2.2.2 MAPPING OF INCLUDED LITERATURE

Bibliometrics is one of the four main measuring techniques in information science, namely bibliometrics, infometrics, scientometrics, and librametrics (Sengupta, 1992). Using statistical/mathematical techniques, it analyzes the organization and numerous patterns of a curated library. Conventionally, bibliometrics is not a usual nor recommended part of a SLR. Nonetheless, this paper conducts this analysis to have a better understanding of the pertinent literature and thus discover potential routes for future research.

A computer-assisted application is the most straightforward approach to conducting bibliometrics. There are two most used applications for this purpose, which are *Bibliometrix* and *VOS Viewer*. *Bibliometrix*, an open-source R tool, performs comprehensive bibliometric analysis using metadata from academic databases, enabling various analyses like co-citation and scientific collaboration (Aria & Cuccurullo, 2017). *VOS Viewer* helps study complex scientific network analysis with user-friendly features, aiding in exploring academic knowledge structures (Perianes-Rodriguez et al., 2016; van Eck & Waltman, 2010). In this article, both tools are employed to elucidate a panoramic overview of scholarly literature.

The following are the main pieces of information extracted from *Bibliometrix* and *VOS Viewer*. The information is included for presentation if it shows significant insight into the included articles and does not meet with technical errors from within the application.

Main information about the sample: The most noticeable insights from this overview are (1) the articles in the included sample spans more than a decade, starting from 2011 to 2023, indicating the novelty of this research stream; (2) the research projects currently involve 73 different authors, with an international co-authorship rate of 26.92%, showing the growing international collaboration trend among them; and (3) the average citations of more than 50 per document, which implies the large interest in the question of providing empirical evidence of effective behavioral change interventions.



Figure 7 Main information about the included articles.

Word cloud: Following is the word cloud generated from the most frequent Keywords Plus. The words “consumer behavior” and “sustainable development” are the most frequent, indicating that the whole search process has led to the right direction, with a highly relevant cohort of articles to answer the research question. The relevance of the words “food waste,” “commerce,” “marketing,” and “social marketings” also underscores the strong presence of the role of marketing in the included articles sample, as well as the most investigated issue of unsustainable behavior – food waste.



Figure 8 Cloud of words with highest occurrences in included articles.

Annual scientific production: the annual production of the articles in the included sample fluctuates every year. Nevertheless, there is a strong trend going forward from 2019, with at least three and at most six articles being published each year, which is much higher than the period pre-2019.

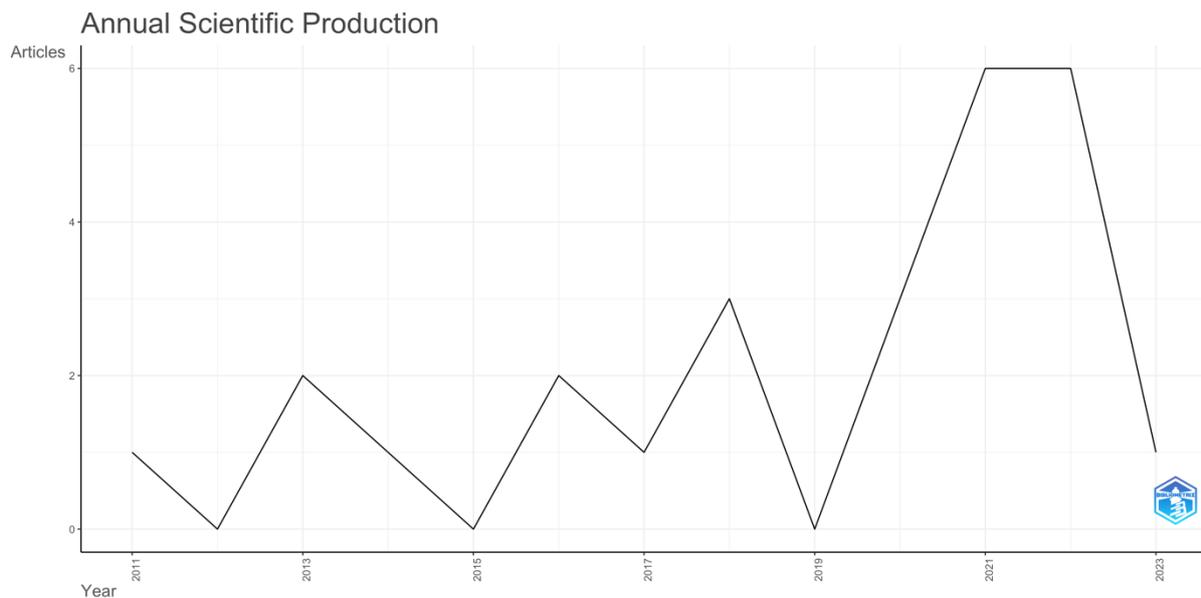


Figure 9 Annual scientific production among included articles.

Most relevant sources: these are the sources that publish most of the articles in the included sample. The Journal of Cleaner Production holds nine out of twenty-six articles being included in the final sample. The European Journal of Marketing follows with the provision of three articles. Business Strategy and the Environment, Journal of Consumer Research, and Journal of Macromarketing host each two articles that could answer the research question.

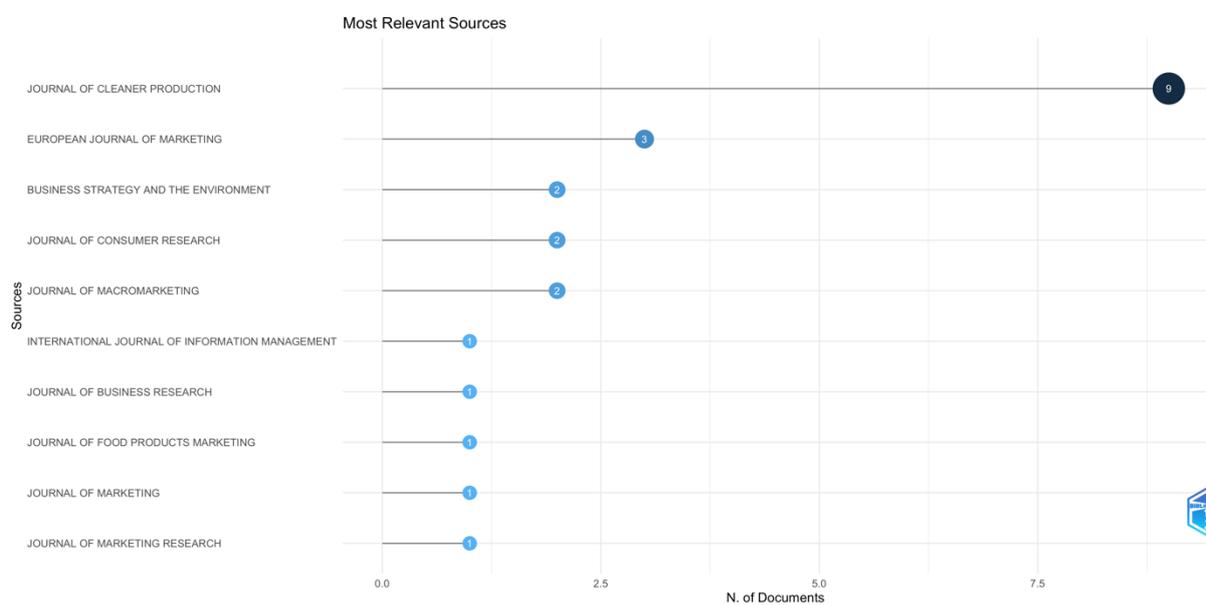


Figure 10 Most relevant sources among included articles.

Most relevant authors: these are the authors who produced most of the work being included in the final sample. Russell-Bennett R authored or co-authored four out of twenty-six included articles.

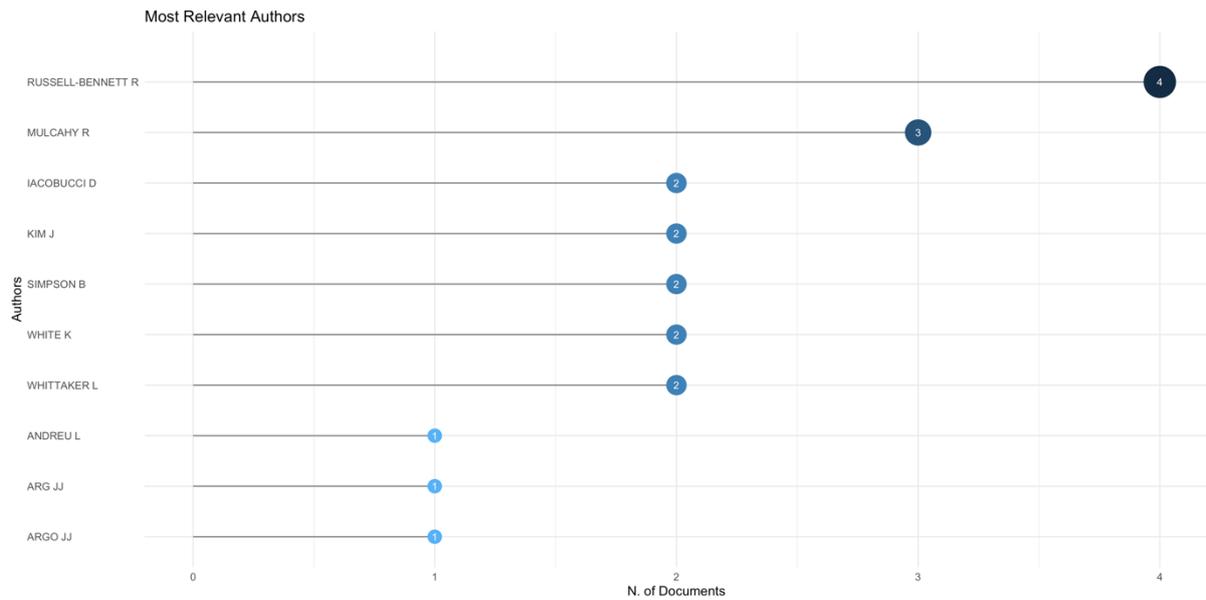


Figure 11 Most relevant authors among the included articles.

Most global cited documents: “global cited,” as opposed to “local cited,” means being cited by any document anywhere. The article by Kidwell et al. (2013) is the most cited document, at 263 times, followed by White et al. (2013) at 258 times.

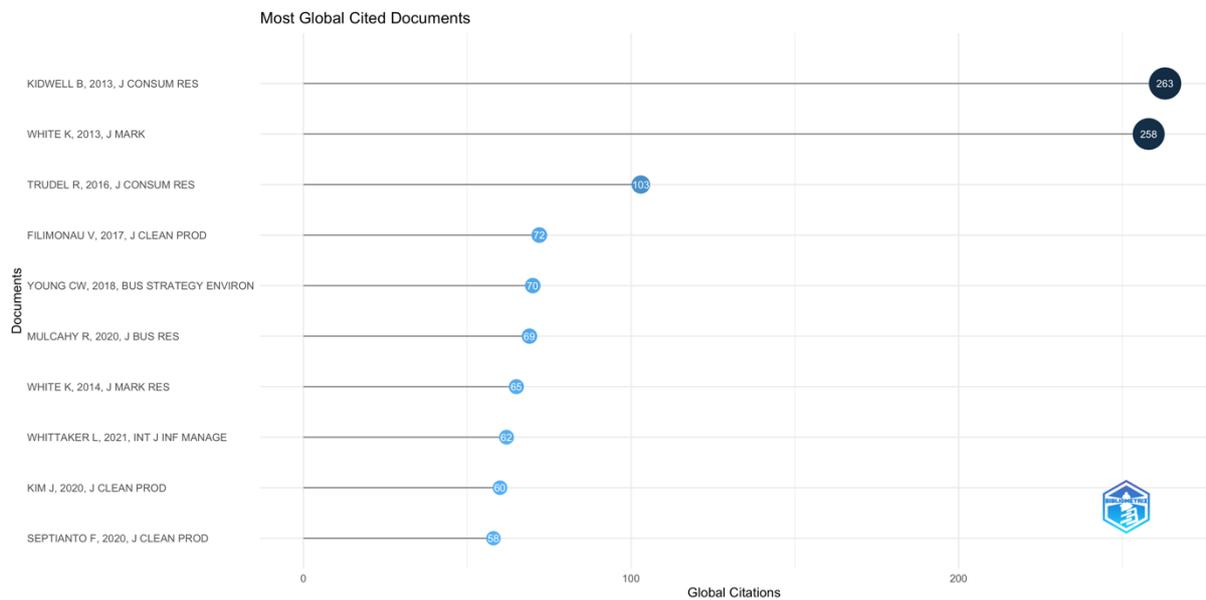


Figure 12 Most cited articles of the final sample.

Most cited countries: the country on this map is the country of affiliation of the authors. The United States of America is the most frequently cited country of affiliation in this sample, followed by Canada and the United Kingdom.

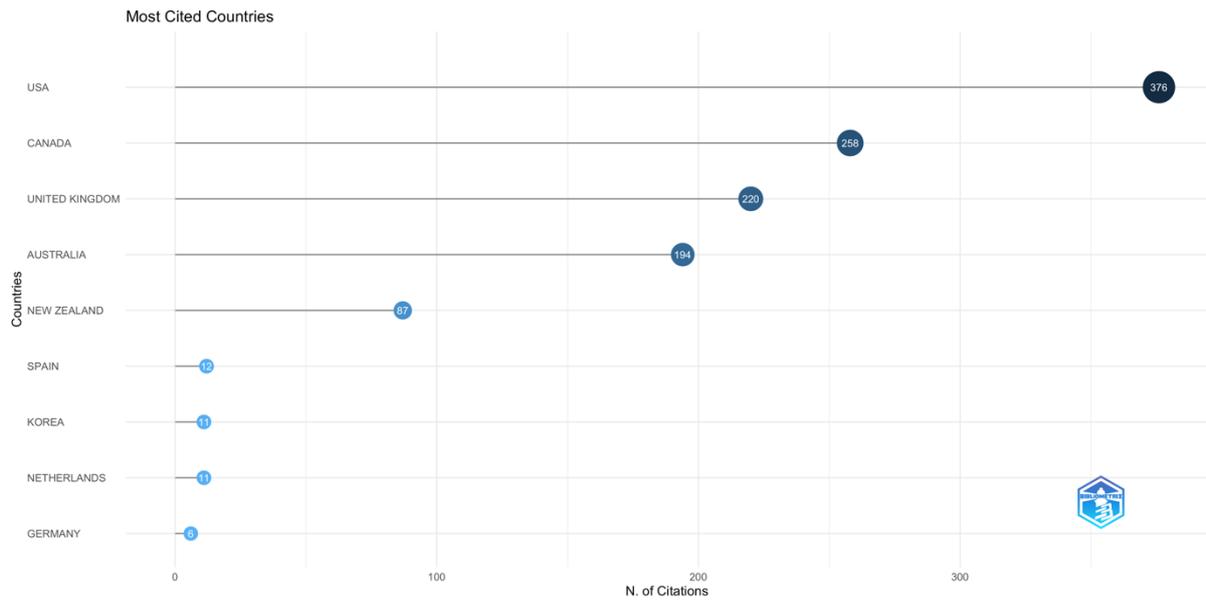


Figure 13 Most cited countries of the final sample.

Three-field plot: A three-field plot is a type of bibliometric tool used to visualize the main items in three fields and how they are related (Aria & Cuccurullo, 2017). “SO” stands for Source, or the publication where the article comes from; “ID” stands for Keywords Plus, or phrases derived from an article’s references, not its title and may not exist even in author’s keywords or terms, using a unique algorithm from Clarivate databases (Clarivate, 2022); “DE” represents the authors’ keywords, or words assigned to the articles by researchers themselves. The curved lines connecting the three columns represent the relationships among the item; the thicker they are, the stronger the relationships. The plot indicates that the Journal of Cleaner Production is the primary source of the research works in the included articles. These authors explore a range of topics, including food waste, social marketing, consumer behavior, sustainability, pro-environmental behavior, interventions, retailers, value-in-behavior, gamification, behavior change, and sustainable consumption. Their research is grounded in literature that shares similar themes, such as food waste, consumer

behavior, retailing, commerce, sustainable development, consumption behavior, marketing, social marketing, behavioral intention, sustainable behavior, behavioral changes, and research.

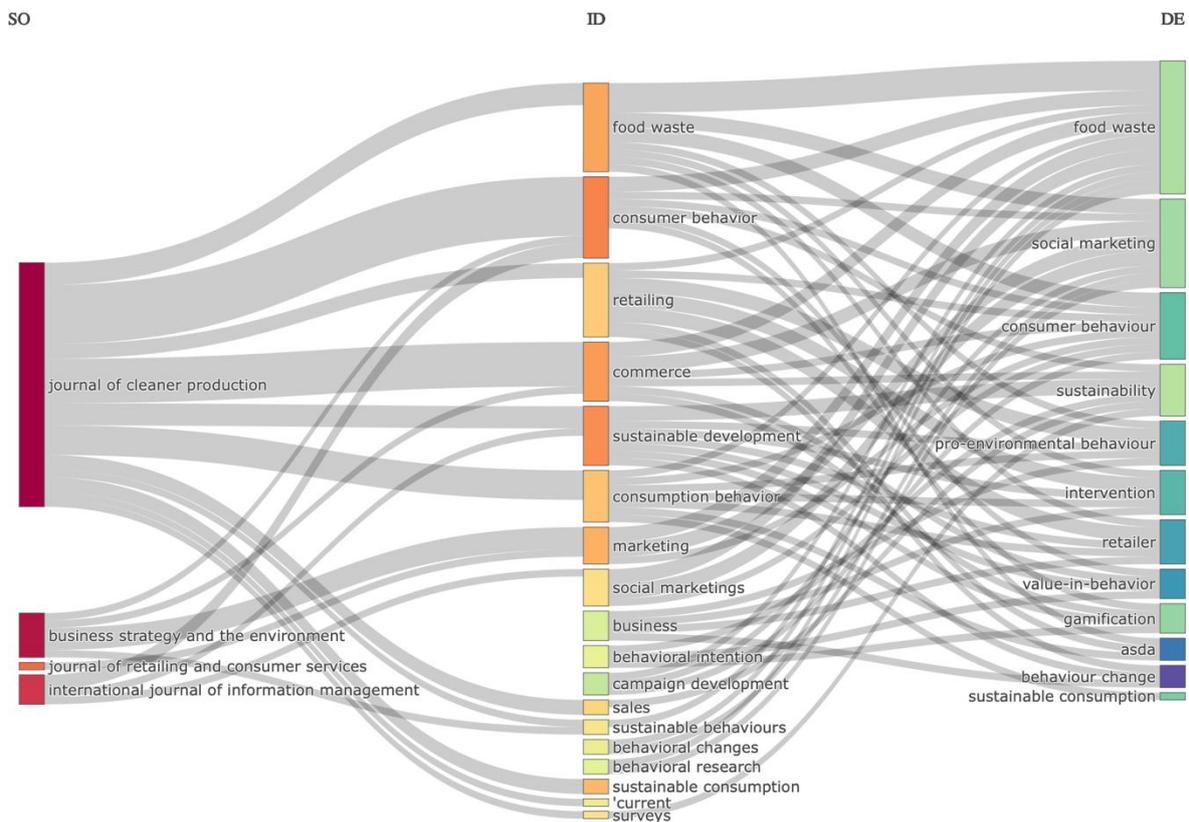


Figure 14 A three-field Sankey diagram linking the sources, the keywords plus, and authors' keywords of the included articles.

Co-citation network (authors): this network shows the authors frequently cited together by other publications. We can distinguish five clusters of authors below.

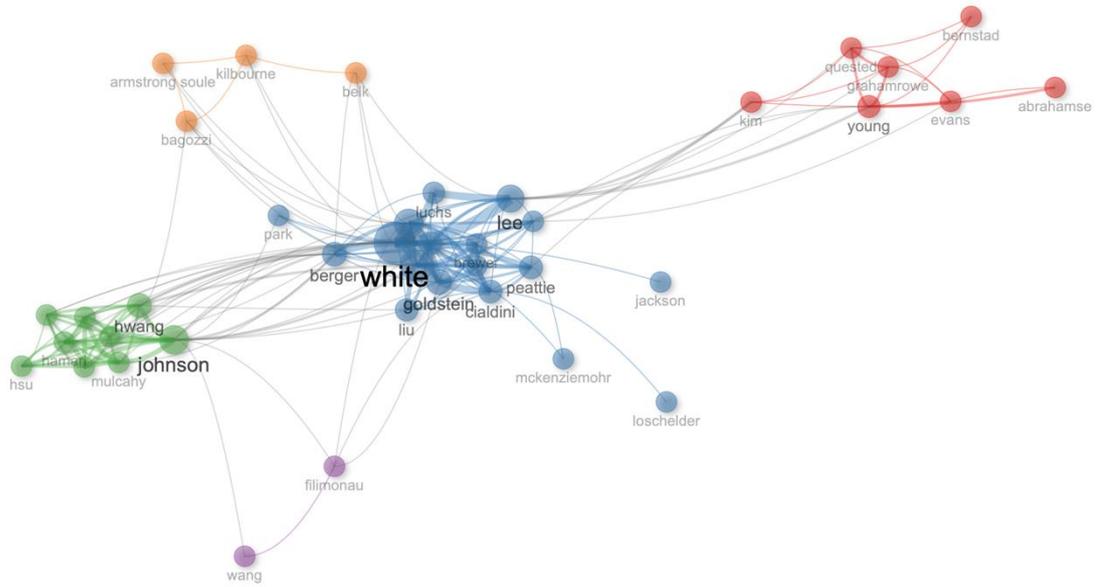


Figure 15 Co-citation network showing the authors frequently cited together.

Co-occurrence network (Titles, Unigrams): these are the words that often go together in the titles of the included articles. Four clusters are identified: (1) consumer, food, waste, influence, behavior, restaurant, role; (2) sustainable, change, behavior, promotion, consumption, development; (3) field, study, game; (4) behavior, doggy, bags.

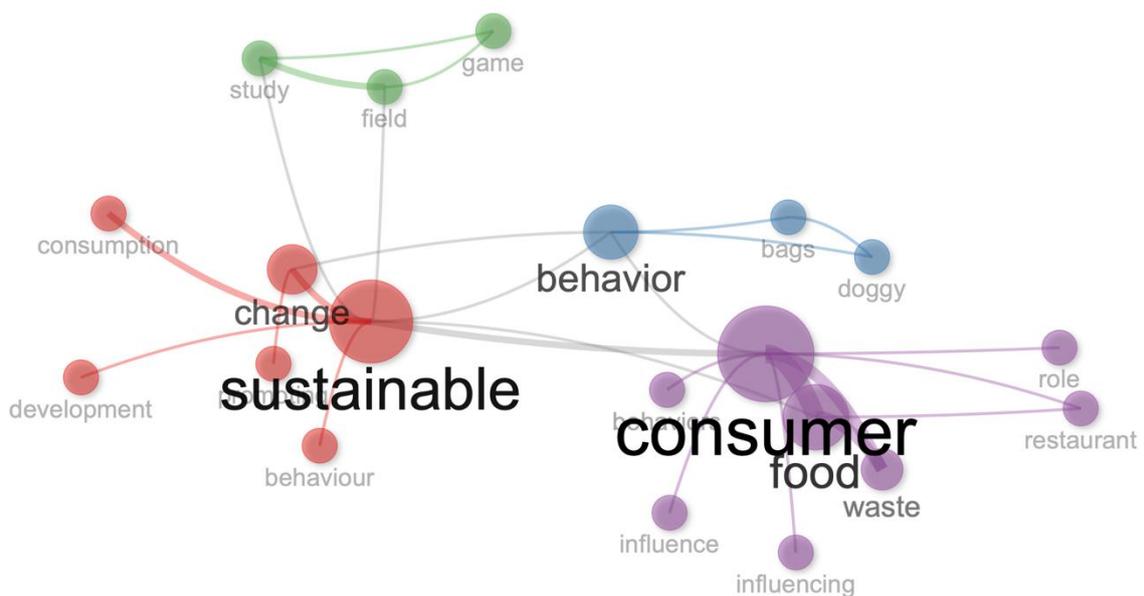


Figure 16 Co-occurrence network shows words frequently appearing together.

Thematic maps are a conceptual structure helpful for understanding the state of the literature are the Thematic map. A thematic map can be built from Keywords Plus, author's keywords, titles, or abstracts. Using a clustering algorithm, *Bibliometrix* then identifies the themes of a domain, which can be visualized on a chart named Strategic or Thematic map (Cobo et al., 2011). However, there are some limitations to this approach: each keyword is associated with only one theme, making it unsuitable for document categorization; and it does not allow for the simultaneous analysis of meta-information. Therefore, a map made from the words of the articles' abstracts, rather than other elements above-mentioned, is selected to have the deepest semantic analysis.

In a thematic map, centrality measures the significance of each theme, while density assesses the level of development within each theme (Callon et al., 1991). Four quadrants are accordingly formed. Terms that are not central to the topic and are not developing among the sample of articles form the Emerging or Declining Themes (secondary). Niche themes (peripheral) comprise of terms that are quickly developing but form an insignificant part of the sample. Basic themes (crossroad) contain terms that are highly relevant to the current topic but are not fully developing. Motor themes (principle) are highly relevant and highly developing themes, constituting the core subject of the articles.

The ensuing thematic map delineates Emerging and Declining Themes, fundamental concepts, and pivotal motor themes. The emerging or declining themes in this sample are sustainable practices and sustainable marketing. The theme with

the highest development degree but marginal is consumers' intentions and disposition behaviors, while the theme that could represent the center of this sample yet underdeveloped is the coffee cup. Motor fields include the field study on sustainable consumption, behavioral intentions, and gamified apps. The public policy on sustainable behaviors in the food service, including the usage of doggy bags, also constitutes the core of these research articles. A third central theme is the social marketing for behavior change, including waste reduction, of which food waste plays a significant role.

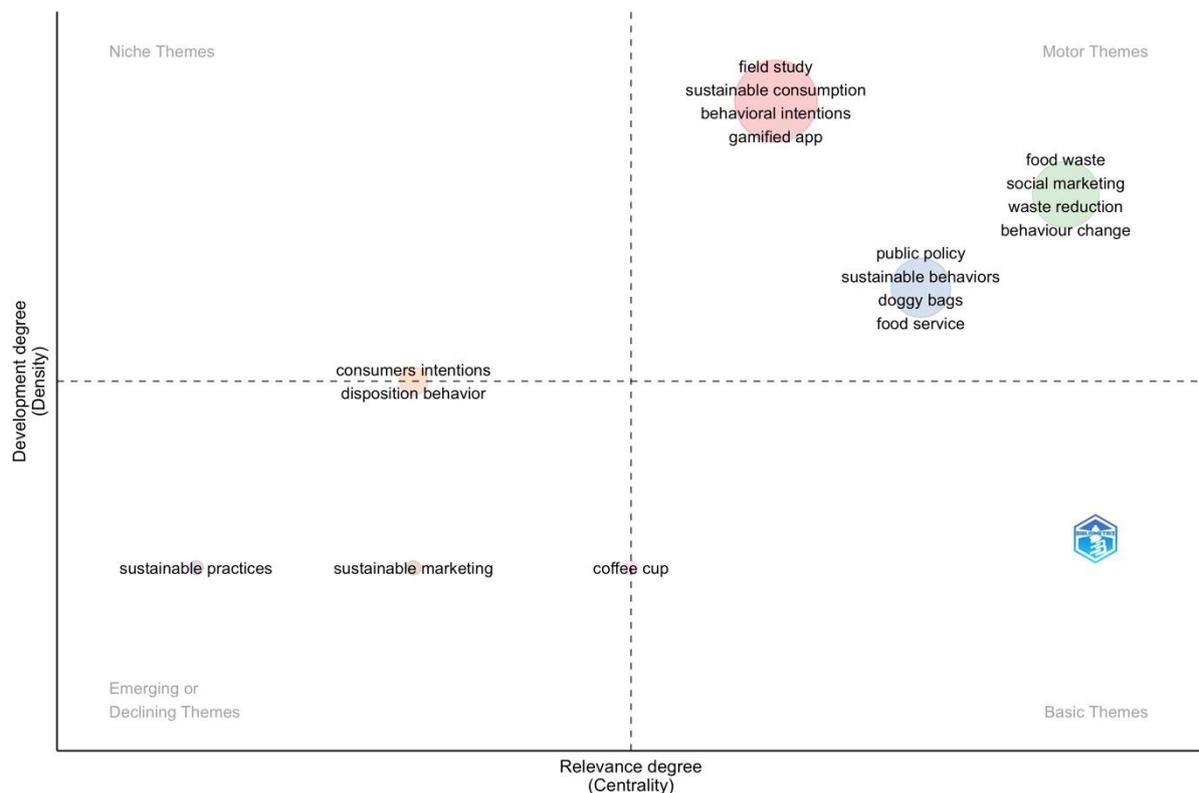


Figure 17 Thematic map of the included articles using *Bibliometrix*, built from the articles' abstracts (Aria & Cuccurullo, 2017)

Tree map: this tree map gives a quick overview of the key ideas and components of the included articles.



Figure 18 The tree map of the most frequent words in the cohort of twenty-six included articles.

Thematic clusters: The text data from reference manager files are used to conduct cluster analyses in *VOS Viewer*, a software tool for visualizing bibliometric networks (van Eck & Waltman, 2010). The terms are extracted from the titles and abstracts of the articles using full counting, which means that each occurrence of a term is counted, regardless of the number of documents it appears in. The following abbreviations are used to describe the parameters of the cluster analyses: MO – the minimum number of times a term must occur in the text data to be considered; N – the total number of terms in the text data; AN – the number of terms that meet the MO criterion; EN – the number of terms that are selected for the cluster analyses; R – the clustering resolution, which determines the number and size of the clusters; X – the generic terms that are excluded).

The cluster analysis result for this group is as follow (MO = 3; N = 870; AN = 117; NA = 70/60%; R = 0.8; X = “article”, “order”, “i e”, “number”, “author”):

- Cluster 1: benefit, business, change, doggy bag, effect, food waste, gain framed implication, gratitude, implication, interaction, opt, public policy, restaurant, social marketing, strategy, sustainable development, technology, time.
- Cluster 2: badge, behavioral intention, business return option, field study, flow, game design element, game mechanic, gamification, gamified app, information and education, knowledge, point, potential, reward, serious game, sustainability, sustainability knowledge, sustainability marketing outcome, sustainable energy behavior, value
- Cluster 3: brand, creativity priming, descriptive appeal, end, end use consumption, end use ideation, identity, individual, intervention, monetary incentive, original idea, product, rcc, self, willingness.
- Cluster 4: backfiring effect, company representative, researcher, source, vegan activist
- Cluster 5: addition, consumer choice, emotional appeal, food service provision, term
- Cluster 6: environment friendly takeaway coffee cup use, institutional factor

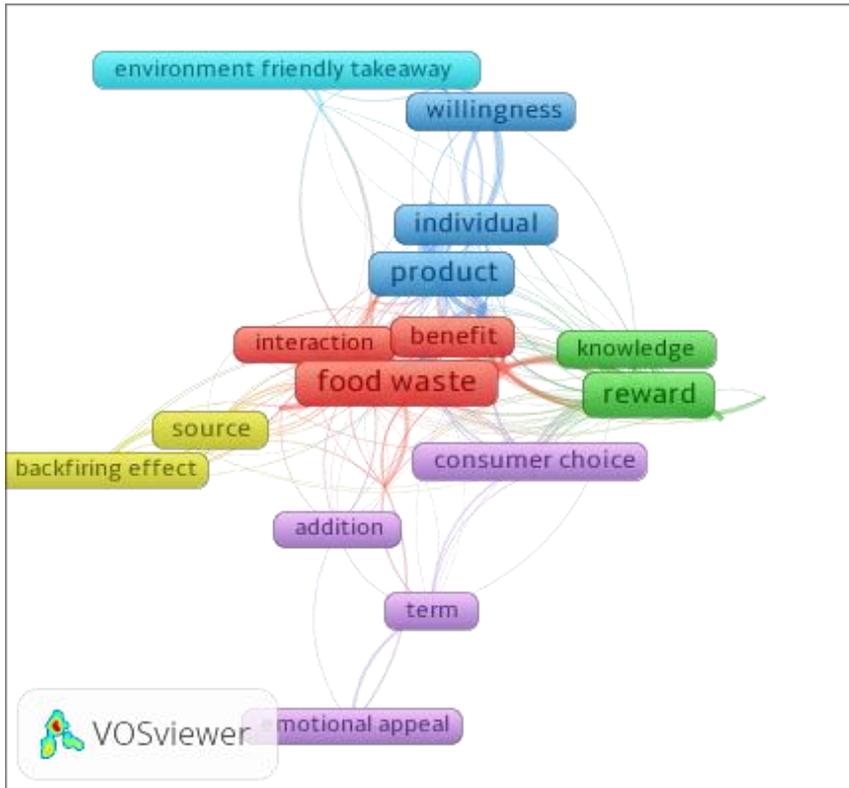


Figure 19 Included articles (Network visualization) - This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

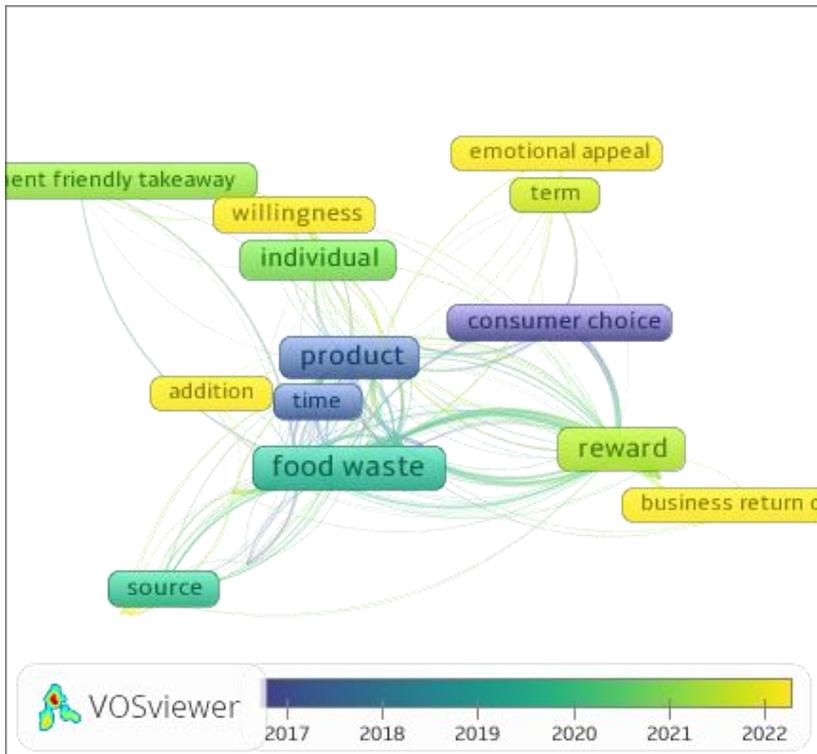


Figure 20 Included articles (Overlay visualization) - According to this visualization, the current research direction in this field seems to consist of the willingness of individuals to engage in business return of certain products, which is considered a pro-environmental behavior, using emotional appeal.

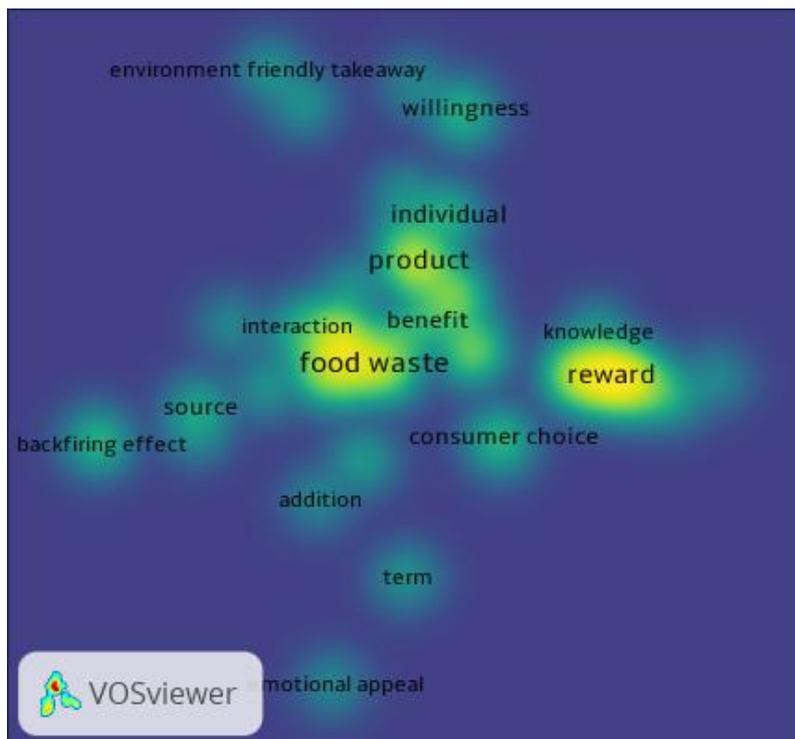


Figure 21 Included articles (Density visualization) – The visualization shows that the key research topics in this group are food waste and rewards.

- Cluster 1 seems to focus on the effects of different strategies and interventions on food waste reduction in the restaurant context. It includes terms related to the benefits, implications, and interactions of various methods, such as offering doggy bags, framing the messages, using technology, and implementing public policies. It also includes terms related to social marketing, sustainable development, and change.
- Cluster 2 seems to focus on the use of gamification and serious games to influence consumers' behavioral intention and sustainability knowledge. It includes terms related to the design and evaluation of game elements, mechanics, and apps, such as badges, points, rewards, flow, and feedback. It also includes terms related to information and

education, sustainability marketing outcome, and sustainable energy behavior.

- Cluster 3 focuses on the role of brand, product, and identity in sustainability marketing. It includes terms related to the creation and communication of brand and product value, such as creativity priming, descriptive appeal, end use consumption, end use ideation, original idea, and reusable coffee cups. It also includes terms related to the influence of identity, individual, self, and willingness on consumers' perception and behavior, such as identity-based product lines, intervention, and monetary incentives.
- Cluster 4 concentrates on the sources and effects of information and messages on consumers' attitude and behavior. It includes terms related to the backfiring effect, which is the phenomenon of consumers reacting negatively or oppositely to the intended message, such as company representative, researcher, source, and vegan activist.
- Cluster 5 investigates the emotional aspects of consumer choice and food service provision. It includes terms related to the addition, emotional appeal, and term of the choice, such as consumer choice, emotional appeal, and term. It also includes terms related to the food service provision, such as food service provision.
- Cluster 6 shows sign of concentration on a specific case of environmentally friendly takeaway coffee cup use and the institutional

factor that affects it. It includes only two terms: “environment friendly takeaway coffee cup use” and “institutional factor.”

Further exploration of the articles included is discussed below. A detailed analysis of the excluded articles, which helps identify significant themes in landscape of sustainability marketing, is included in Appendix 9.1.

2.2.3 CRITICAL APPRAISAL OF INCLUDED ARTICLES

Critical appraisal is an integral step in systematic literature reviews of prevalence data, involving a thorough assessment of the methodological quality of included studies (Munn et al., 2014). It ensures the inclusion of high-quality research, enhancing overall validity and reliability. Critical appraisal also identifies biases and limitations, informs study relevance, and highlights areas for further research and improvement. Within the landscape of systematic literature reviews (SLRs) in the social sciences, critical appraisal stands as an arena warranting refinement and enhancement (Chapman, 2021).

This article aims to address this need by critically evaluating the selected articles to ensure their quality and rigor. The subsequent section presents a detailed critique of these articles, employing the Joanna Briggs Institute Prevalence Critical Appraisal Tool (Munn et al., 2014).

2.2.3.1 CRITICAL APPRAISAL PROCEDURE

The following are the questions, taken from Munn et al. (2014), used to assess the quality of the included articles.

1. Was the sample representative of the target population?

2. Were study participants recruited in an appropriate way?
3. Was the sample size adequate?
4. Were the study subjects and setting described in detail?
5. Is the data analysis conducted with sufficient coverage of the identified sample?
6. Were objective, standard criteria used for measurement of the condition?
7. Was the condition measured reliably?
8. Was there appropriate statistical analysis?
9. Are all important confounding factors/ subgroups/differences identified and accounted for?
10. Were subpopulations identified using objective criteria?

Each of these articles undergoes critical appraisal, evaluated in accordance with their respective responses to this set of predetermined questions. The extent to which they align with the established criteria determines the degree of importance assigned to their findings, thus shaping their impact on the conclusion. Any questions that remain unaddressed due to insufficient information are denoted as "unclear" or "not applicable."

2.2.3.2 PRESENTATION OF RESULTS FROM THE QUALITY ASSESSMENT

This table resumes the assessment for each of the articles included in the criteria set above. The full justifications for each of these results can be found in a document named Critical Appraisal.

Table 3 Critical appraisal, a quality assessment procedure, of included articles.

| Author (Year) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | TOTAL Y (/10) |
|-------------------------------|---|---|---|---|---|---|---|---|---|----|---------------|
| Armstrong Soule et al. (2022) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Balderjahn et al. (2023) | 1 | 1 | / | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Boenke et al. (2022) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Elf et al. (2021) | / | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Filimonau et al. (2017) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Kidwell et al. (2013) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Kim et al. (2020) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| McGouran et al. (2016) | / | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Mirosa et al. (2018) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Morgan et al. (2018) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Mulcahy et al. (2020) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Mulcahy et al. (2021) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Nicolau et al. (2022) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Phipps et al. (2011) | / | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Ratay et al. (2022) | / | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Sandhu et al. (2021) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | / | 1 | 1 | 9 |
| Septianto et al. (2020) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Su et al. (2022) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Tarabashkina et al. (2022) | / | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| Trudel et al. (2016) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Van Herpen et al. (2021) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| White et al. (2013) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| White et al. (2014) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Whittaker et al. (2021) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Whittaker et al. (2021) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |
| Young et al. (2018) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 10 |

Legend: Y = YES, N = NO, / = UNCLEAR/NOT APPLICABLE

2.2.3.2.1 COMMON STRENGTHS AMONG INCLUDED ARTICLES

First, the studies use rigorous and diverse methodologies, such as social media data analysis, online experiments, field experiments, factorial survey experiments, and case studies, to test their hypotheses and interventions. Secondly, they draw on relevant and well-established theories (e.g., signaling theory, social identity theory, self-determination theory, innovation diffusion theory, perceived value theory, planned behavior theory, construal level theory, goal framing theory, identity theory, identity threat theory, behavioral learning hierarchy, value-in-behavior framework, etc.) to explain the mechanisms and moderators of their effects. Third, the articles cover a wide range of domains related to sustainable consumption (e.g., anti-consumption, recycling, food waste, water consumption, energy conservation,

product reuse, and upcycling, and provide insights and implications for practitioners and policymakers in these domains). Finally, the effectiveness of interventions in these studies are measured using reliable and valid scales and indicators (e.g., anti-consumption intentions, willingness to pay, brand attractiveness, status perceptions, environmental concern, need for status, sustainability knowledge, value-in-behavior, sustainable behavioral intention, psychological reactance, creativity, imagination, inspiration, disposal decisions, etc.)

2.2.3.2.2 COMMON QUALITY ISSUES AMONG INCLUDED ARTICLES

The most common issue among included articles is the employment of non-probability sampling, in particular convenience sampling (n = 18). These could generate homogeneous samples and may not represent the diversity of the general population.

In the realm of psychological and cross-cultural studies, the practice of student sampling is prevalent due to its convenient recruitment process and cost-effectiveness (Hanel & Vione, 2016). This method is commonly used to reduce sample variability and yield moderately representative results (Hanel & Vione, 2016). Nevertheless, concerns have been raised about the representativeness, generalizability, and comparability of findings drawn from student samples, as students often possess a higher socioeconomic status, which can challenge the broader applicability of the data (Hanel & Vione, 2016). It's worth noting that student samples also tend to exhibit a higher degree of homogeneity when compared to non-student participants (Hanel & Vione, 2016). While the use of student samples can be viewed as a limitation in

research, authors frequently employ methodological or statistical defenses to justify this choice (Henry, 2008). However, the literature presents conflicting evidence regarding the range of attitudes and effect sizes obtained from student samples compared to non-student populations (Henry, 2008). Considering these complexities, it has been suggested that researchers explicitly articulate the theoretical relevance of employing student samples in their studies (Peterson & Merunka, 2014).

In the articles included in the final sample, many utilize student sampling. Nonetheless, most do not provide the justification of this usage in relation to their intended generalizability, which is public. As mentioned earlier, whether students are representative of the general population is highly questionable. Therefore, this represents a limitation for the articles employing student sampling and other similar sampling methods. The same goes for community sampling, where the characteristics of one specific community may not be extendable to other communities.

Snowball sampling ($n = 1$), a method used to locate special populations (e.g., homeless adolescents, homosexuals, minority community leaders, drug users, etc.), also faces notable drawbacks (Johnson, 2014). First, its selection process, where existing study participants are used to recruit additional participants, is not random. This lack of randomness could lead to biased samples at various stages of research. Secondly, with subjective judgments from previous informants, potential biases and confidentiality concerns could impact the reliability and validity of the collected data. Finally, the assumption that members of the population know each other can limit the

findings' applicability and accuracy, particularly in cases where these connections are not well-defined.

However, despite these limitations, snowball sampling remains popular due to its cost-effectiveness and efficiency in finding elusive individuals. It allows for quick data collection, making it particularly useful for initial exploration when parameters for more structured sample designs are scarce. Yet, its susceptibility to biases and reliance on subjective judgments highlight the need for caution and additional strategies to enhance its reliability in research contexts.

Secondly, several studies relied on self-reported data, which may be subject to social desirability bias (Fisher & Katz, 2000) and add to the intention-behavior gap (Carrington et al., 2014). Specifically, participants may report what they think is socially acceptable rather than their true thoughts or behaviors. This may explain why there exists the intention-behavior gap, where consumers expressed intentions do not translate into actual behaviors. Finally, some studies did not use control groups. This may make it difficult to isolate the effects of the interventions from other factors that might influence the outcomes.

To conclude, the limitations of some academic articles can be categorized into two principal areas: methodological and temporal.

Methodological limitations are evident in some studies that may not accurately capture the actual behavior and outcomes of consumers in real-world settings. For instance, Nicolau et al. (2022) used a hypothetical scenario and a monetary incentive to gauge consumers' willingness to bring reusable coffee cups, which may not reflect

their actual behavior or motivation in real situations. Septianto et al. (2020) relied on self-reported measures of food waste intentions, rather than actual behavior, which may introduce social desirability bias, memory errors, or intention-behavior gaps. Armstrong Soule et al. (2022) utilized a single experimental design and self-reported survey items, which may not capture the actual behavior and outcomes of anti-consumption behavior. Lastly, Su et al. (2022) conducted their study with a sample size of 173 participants, which may limit the generalizability and reliability of their findings.

Temporal limitations occur when studies do not measure the long-term effects or outcomes of the interventions, which may not account for the sustainability or durability of the behavior change. For instance, Whittaker et al. (2021) measured the behavioral intentions and outcomes of the participants only after one week of gameplay, which may not reflect the maintenance or spillover of the behavior change. Trudel et al. (2016) measured the disposal behavior of the participants only after viewing the identity manipulation, which may not capture the satisfaction or repetition of the behavior. McGouran et al. (2016) measured the experiences and meanings of the participants only during and shortly after the intervention, which may not indicate the impact or continuation of the behavior. Lastly, Van Herpen et al. (2021) measured the doggy-bag use and plate waste of the participants only during the intervention, which may not account for the habit formation or social norm diffusion of the behavior.

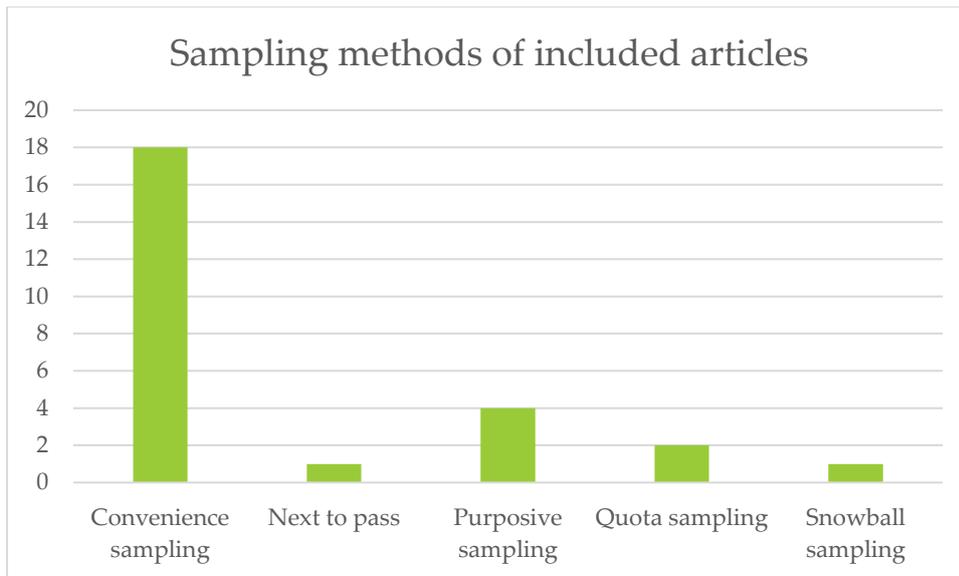


Figure 22 Overview of the sampling methods of included articles.

2.2.4 CRITICAL ANALYSIS OF INCLUDED ARTICLES

2.2.4.1 EVALUATION OF EFFECTS

This chart visualizes the effectiveness of various articles based on the Bauman hierarchy of effects. This model, proposed by Bauman et al. (2002), is used to evaluate the effectiveness of media campaigns for promoting positive societal changes, such as increased physical activity or pro-environmental behavior.

The Bauman hierarchy of effects (Bauman et al., 2002), as delineated previously, encapsulates a spectrum of stages extending from Exposure to Success. Within the context of this article, we classify the interventions of the studies as Success if the consumer has not only adopted the desired behavior but also maintained it well beyond the cessation of the intervention. Consequently, most manuscripts that fall into this category have conducted longitudinal studies as opposed to one-off interventions. Manuscripts that attain the Trial levels are those that have substantiated that their interventions instigated the desired behavior among the target

demographics. However, the sustainability of the promoted behavior is observed only once, and its future continuation is not guaranteed. Pertaining to the Intention level, the manuscripts that reach this stage are those that have elicited positive intentions from consumers post-intervention, typically through survey methods. Despite the experimental nature of the studies' design, these studies do not yield actual behavioral data indicative of real behavioral change and may not bridge the intention-behavior gap. The Acceptance, Understanding, Attention, and Exposure levels correspond to the effects of the intervention that align with their descriptive nomenclature. The effectiveness of such interventions remains inconclusive.

This chart illustrates the number of articles that attain each stage, providing a measure of the extent to which each level is reached. The "rule of halves" suggests that as we ascend the hierarchy, fewer articles are expected to reach each successive stage. However, given that the articles in our sample have already been vetted for empirical validation of consumer behavior changes through marketing activities, most are situated in the upper half of the hierarchy. Consequently, the number of articles achieving each level does not follow this rule, indicating that our sample of articles offers highly effective insights into consumer behavior change.

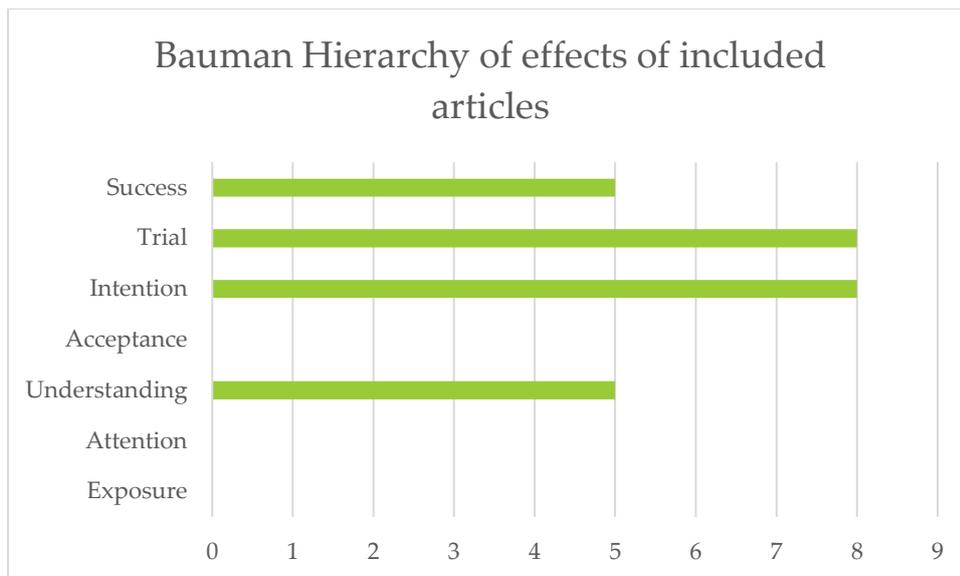


Figure 23 Overview of the number of articles reaching certain Bauman Hierarchy of effects.

Interestingly, none of the articles correspond to the Exposure, Attention, and Acceptance levels. Most of the included articles reach the Trial ($n = 8$) level, demonstrating that consumers, influenced by various interventions, have attempted the new behaviors. Sharing the same number is the Intention level ($n = 8$), where consumers express their intention to change behaviors after interventions, as primarily indicated through surveys. This suggests a planned change, although not yet proven in the studies. The Understanding level is the next most common ($n = 5$), where consumers have begun to comprehend the proposed pro-environmental behaviors but have not necessarily integrated these behaviors into their lifestyles. This same number of articles ($n = 5$) reach the Success level. At this stage, consumers have not only adopted the sustainable behaviors targeted by the interventions but have also maintained these behaviors long after the intervention has ended.

2.2.4.2 EVALUATION OF THEORETICAL CONTRIBUTION

Using the theoretical contributions taxonomy proposed by Colquitt and Zapata-Phelan (2007), we attempt to categorize the included articles into five categories based on their levels of theory building and theory testing. It is important to note that this taxonomy is solely used to analyze the intentions of the articles, rather than how they have executed their research. The taxonomy can be used to analyze the trends of theoretical contribution of the included articles and determine the remaining gaps for future research to build on.

The five types of empirical articles, based on their theory testing and theory building intentions are, according to Colquitt and Zapata-Phelan (2007), reporters, testers, qualifiers, builders, or expanders. Reporters, with low intentions on theory building and theory testing, are mostly replications of past research to uncover overlooked insights or reexamine those studies with more advanced tools and techniques. Testers, high-intentioned in theory testing but low-intentioned in theory building, experiment with extant theories, on different samples, to verify the validity of the latter. Qualifiers, with moderate intentions in both theory building and theory testing, usually introduce novel moderators or mediators of existing relationships, using existing theoretical arguments. Builders, high-intentioned in theory building and low-intentioned in theory testing, introduce new relationships, constructs, and relationships, but they do so mostly by making logical conjectures or extrapolation rather than testing existing arguments. Expanders, with high intentions in both theory building and theory testing, mostly resemble builders in establishing novel

relationships, constructs, and processes or re-introducing prevailing ones, yet they ground their predictions with existing theories, thus expanding those further.

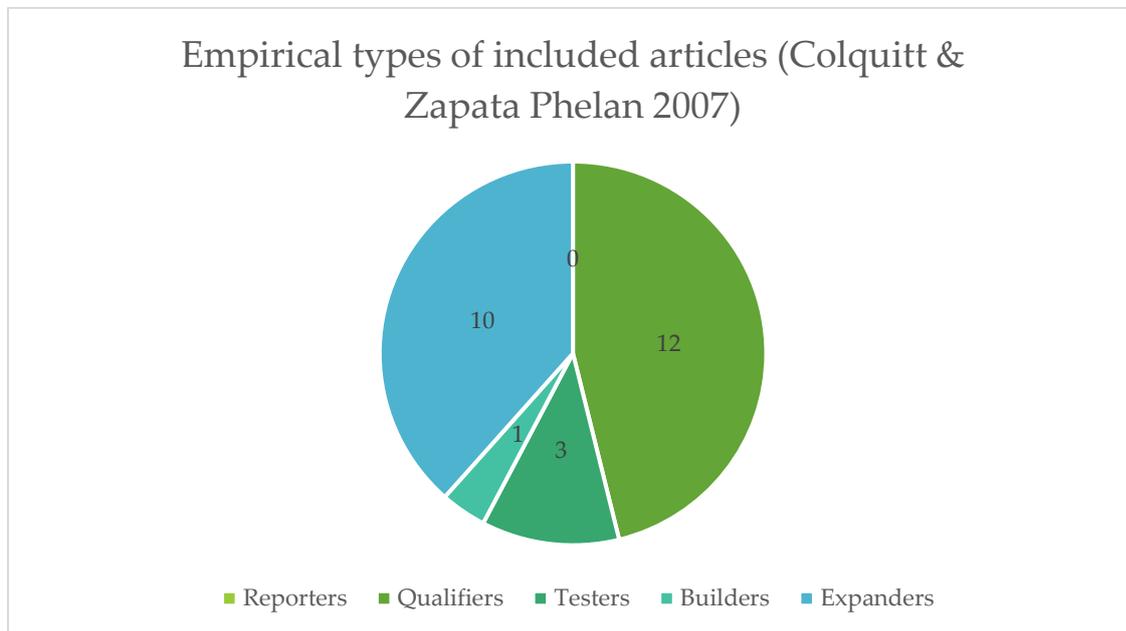


Figure 24 The types of empirical article represented by the included articles.

Accordingly, most of the empirical articles analyzed are Qualifiers and Expanders, with 12 and 10 articles, respectively. This indicates that the authors of these articles have moderately high intentions in both theory building and theory testing. The number of Testers is low, with only three articles, which suggests that there is less emphasis on verifying the validity of extant theories. Builders are the least represented category, with only one article, indicating that there is less focus on introducing new relationships, constructs, and relationships. Reporters are not represented at all, which suggests that the authors of the analyzed articles are not interested in replicating past research to uncover overlooked insights or reexamine those studies with more advanced tools and techniques. Overall, the results suggest that the authors of the analyzed empirical articles are more interested in introducing novel moderators or mediators of existing relationships, establishing novel

relationships, constructs, and processes, or re-introducing prevailing ones, and expanding existing theories further.

2.2.5 THEMATIC ANALYSIS OF INCLUDED ARTICLES

2.2.5.1 THEORETICAL APPROACHES

The theories that are most frequently mobilized are Nudge (Armstrong Soule & Sekhon, 2022; Boenke et al., 2022; Filimonau et al., 2017; Mulcahy et al., 2021) and Social Identity Theory (Armstrong Soule & Sekhon, 2022; Boenke et al., 2022; Trudel et al., 2016; White & Simpson, 2013), which are both mobilized 4 times and are related to Social Marketing. The theories that are used moderately (2-3 times) include Co-creation/Co-design (Elf et al., 2021; Kim et al., 2020), Elaboration likelihood model (Balderjahn & Hoffmann, 2023; Boenke et al., 2022), Fluency theory (Kidwell et al., 2013; Septianto et al., 2020), Goal compatibility theory (van Herpen et al., 2021; White & Simpson, 2013), Innovation diffusion theory (Su et al., 2022; Young et al., 2018), Operant conditioning (Mulcahy et al., 2020, 2021), Perceived barriers (Nicolau et al., 2022; Ratay & Mohnen, 2022), Perceived value theory (Mulcahy et al., 2020; Su et al., 2022), Self-determination theory (Armstrong Soule & Sekhon, 2022; Mulcahy et al., 2020), Social influence (Balderjahn & Hoffmann, 2023; Young et al., 2018), Social Marketing (Filimonau et al., 2017; Kim et al., 2020; Miroso et al., 2018), and the Theory of planned behavior (Balderjahn & Hoffmann, 2023; Sandhu et al., 2021; Su et al., 2022). These theories cover a wide range of topics, from cognitive psychology, marketing, social marketing, and environmental behavior.

Most of the theories are used only by one article, which suggests a wide range of theoretical perspectives and a multi-disciplinary approach to the subject matter.

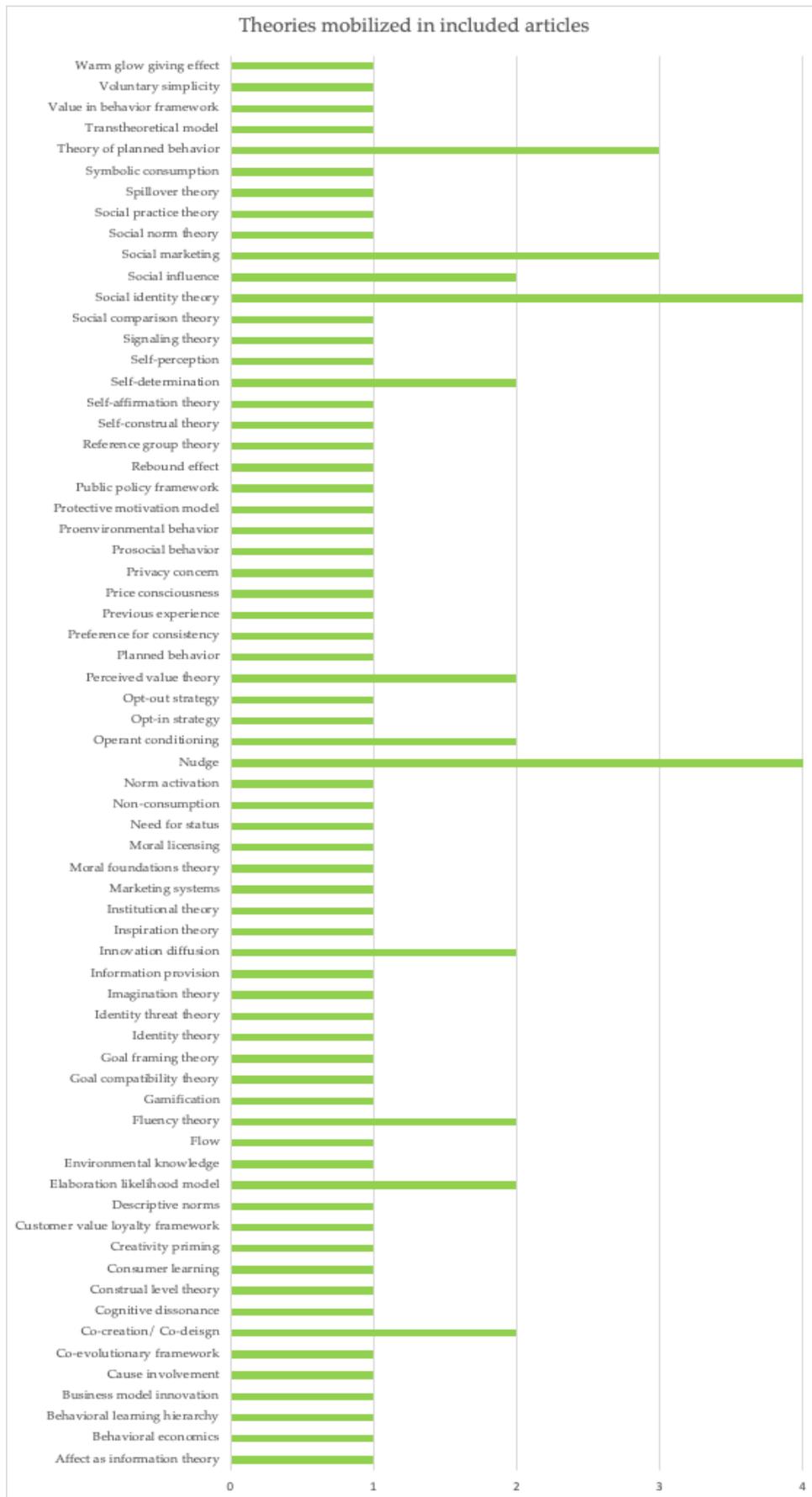


Figure 25 Theories mobilized by included articles to design behavior change interventions.

Operant conditioning stands out among the theories mobilized by Success articles, with behavior change being empirically proven in two included articles.

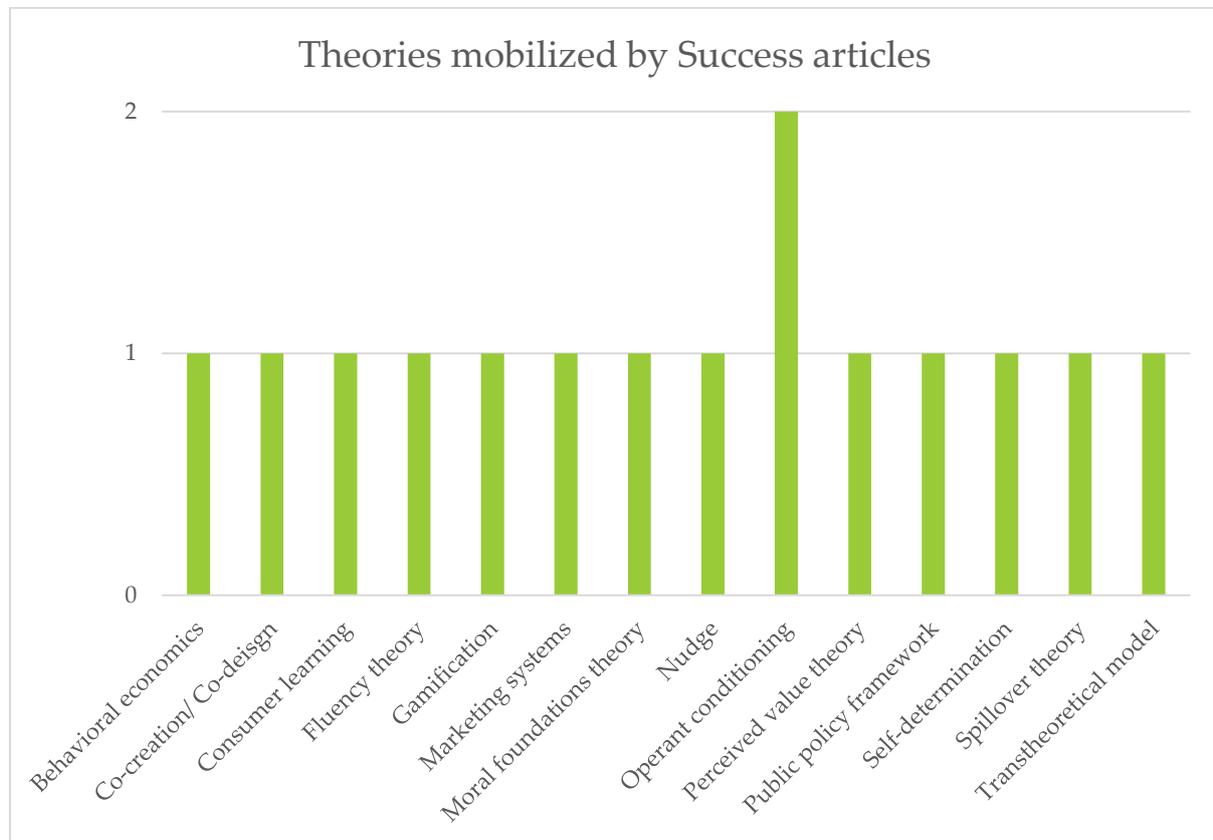


Figure 26 The theories mobilized by the articles reaching the Success level of the Bauman Hierarchy of Effects.

In summary, while there is a dominant theory (Nudge), which is followed by other significant theories (Theory of Planned behavior, Social Marketing, Social Identity Theory), there is also a wide variety of other contributing theories, indicating a rich and diverse theoretical approach among the included articles.

2.2.5.1.1 RESEARCH STREAMS

The theories deployed to change consumer behaviors span a wide range of academic disciplines. Following is an attempt to categorize these theories based on their primary fields of study. The research streams comprise of Psychology and

Behavioral Sciences, Marketing, Social Marketing & Business, Sociology and Public Policy, and Design Thinking.

Table 4 Mobilized theories and corresponding research streams.

| Psychology and Behavioral Sciences | Marketing and Business | Sociology and Public Policy | Design Thinking |
|---|----------------------------------|------------------------------------|------------------------|
| Affect as Information Theory | Business Model Innovation | Co-Evolutionary Framework | Co-Creation/ Co-Design |
| Behavioral Economics | Cause Involvement | Institutional Theory | |
| Behavioral Learning Hierarchy | Customer Value Loyalty Framework | Non-Consumption | |
| Cognitive Dissonance | Gamification | Nudge | |
| Construal Level Theory | Information Provision | Opt-In Strategy | |
| Consumer Learning | Innovation Diffusion | Opt-Out Strategy | |
| Creativity Priming | Marketing Systems | Public Policy Framework | |
| Descriptive Norms | Perceived Value Theory | Social Practice Theory | |
| Elaboration Likelihood Model | Price Consciousness | Voluntary Simplicity | |
| Flow | Signaling Theory | | |
| Fluency Theory | Social Marketing | | |
| Goal Compatibility Theory | | | |
| Goal Framing Theory | | | |
| Identity Theory | | | |
| Identity Threat Theory | | | |
| Imagination Theory | | | |
| Moral Foundations Theory | | | |
| Moral Licensing | | | |
| Need for Status | | | |
| Norm Activation | | | |
| Operant Conditioning | | | |
| Perceived Barriers | | | |
| Preference for Consistency | | | |
| Previous Experience | | | |
| Privacy Concern | | | |
| Prosocial Behavior | | | |
| Pro environmental Behavior | | | |
| Protective Motivation Model | | | |
| Rebound Effect | | | |
| Reference Group Theory | | | |
| Self-Construal Theory | | | |
| Self-Affirmation Theory | | | |
| Self-Determinations | | | |
| Self-Perception | | | |
| Social Comparison Theory | | | |
| Social Identity Theory | | | |
| Social Influence | | | |
| Social Norm Theory | | | |
| Spillover Theory | | | |
| Symbolic Consumption | | | |
| Theory of Planned Behavior | | | |
| Transtheoretical Model | | | |
| Value-in-Behavior framework | | | |
| Warm Glow Giving Effect | | | |

| | | | |
|------------------------------------|------------------------|-----------------------------|-----------------|
| Psychology and Behavioral Sciences | Marketing and Business | Sociology and Public Policy | Design Thinking |
|------------------------------------|------------------------|-----------------------------|-----------------|

The presence of numerous theories in the included articles aiming to change consumer behavior to be pro-environmental indicates a comprehensive and multidisciplinary approach to understanding and influencing consumers.

The disciplines of Psychology and Behavioral Sciences encompass a wealth of pivotal theories that have been empirically validated to influence consumer behavior, or at the very least, enhance our comprehension of it. Among the theories of these disciplines, the Social Identity Theory (Armstrong Soule & Sekhon, 2022; Boenke et al., 2022; Trudel et al., 2016; White & Simpson, 2013) and the Theory of Planned Behavior (Balderjahn & Hoffmann, 2023; Sandhu et al., 2021; Su et al., 2022) are predominantly utilized. Other theories such as the Elaboration Likelihood Model (Balderjahn & Hoffmann, 2023; Boenke et al., 2022), Fluency Theory (Kidwell et al., 2013; Septianto et al., 2020), Goal Compatibility Theory (van Herpen et al., 2021; White & Simpson, 2013), Operant Conditioning (Mulcahy et al., 2020, 2021), Perceived Barriers (Nicolau et al., 2022; Ratay & Mohnen, 2022), Self Determination (Armstrong Soule & Sekhon, 2022; Mulcahy et al., 2020), Social Influence (Balderjahn & Hoffmann, 2023; Young et al., 2018), Social Marketing (Filimonau et al., 2017; Kim et al., 2020; Miroso et al., 2018), and Value in Behavior Framework (Whittaker, Mulcahy, et al., 2021; Whittaker, Russell-Bennett, et al., 2021) also hold significant relevance and are frequently employed in the second tier of application.

The field of Marketing and Business also plays a significant role in understanding and influencing consumer behavior. Innovation diffusion theory (Su et al., 2022; Young et al., 2018), and Perceived Value Theory (Mulcahy et al., 2020; Su et al., 2022) have been most cited in studies empirically proven to change consumer behaviors. The position of Marketing and Business theories in the included articles underscores the importance that these core disciplines are not only in driving business success but also in shaping consumer behavior.

Sociology and Public Policy, with the third greatest number of theories successfully contributing to changing consumer behavior to be pro-environmental, indicates a recognition of the broader societal and policy contexts within which consumer behavior occurs. The theory that has been empirically effective in shaping consumer behavior is Nudge theory (Armstrong Soule & Sekhon, 2022; Boenke et al., 2022; Filimonau et al., 2017; Mulcahy et al., 2021). The presence of this theory highlights the significance of considering the broader societal and policy context in efforts to understand and influence consumer behavior. They suggest that effective interventions may require changes at multiple levels, from individual cognitive processes to societal norms and public policies, which could be referred to as the meso level changes as previously mentioned (Brennan et al., 2014).

Finally, the fact that Design Thinking is conducive to effectively changing consumer behavior accentuates the importance of adopting a perspective that puts humans, or consumers in particular, at the center when attempting to change consumer behavior (Liedtka, 2018). With Design Thinking, while geared towards

understanding consumers' needs and experiences, also fundamentally changes the experiences of innovators themselves. This way, marketers and innovators could set aside their own views and recognize the needs that consumers have not expressed. Co-creation, or Co-Design, despite being the only theory in the discipline, is an important theoretical pillar on which efficacious consumer behavior change interventions were built (Elf et al., 2021; Kim et al., 2020).

2.2.5.1.2 THEORETICAL FOUNDATIONS FOR CHANGING CONSUMER BEHAVIOR TO BE PRO-ENVIRONMENTAL

Following are the theories that have been empirically the most successful in changing consumer behavior to be pro-environmental from the included articles.

2.2.5.1.2.1 CO-CREATION/CO-DESIGN

Co-creation and co-design principles lay the foundation for one included article that reach the Success level in Bauman Hierarchy of Effects (Bauman et al., 2002). Indeed, co-creation and co-design are increasingly recognized as effective strategies for promoting pro-environmental consumer behavior. These approaches involve consumers in the design process, ensuring that interventions are closely aligned with their needs and preferences (Mahmoud et al., 2021; Messiha et al., 2023).

Co-creation and co-design are defined differently. On the one hand, co-creation is an overarching principle about collaboration and innovative problem-solving among various stakeholders across all initiative phases. It has been applied in various contexts, including urban planning and public health, to promote sustainable practices. Co-design, on the other hand, is a more specific approach that involves consumers in the design of products, services, or interventions. This theory is based

on the premise that consumers, as end-users, have unique insights that can lead to more effective and acceptable solutions.

By involving consumers in the design and creation of marketing interventions aiming to tackle undesirable behaviors (e.g., food waste), Elf et al. (2021) and Kim et al. (2020) have not only facilitated the understanding of consumers on this matter, but also actually changed their behavior to be more sustainable (e.g., reduce food waste).

2.2.5.1.2 ELABORATION LIKELIHOOD MODEL

The Elaboration Likelihood Model (ELM) is a key theory in the realm of persuasion and has found extensive application in consumer behavior studies (J. Kitchen et al., 2014; Jansson-Boyd & Zawisza, 2017; Shahab et al., 2021). The ELM proposes two pathways to persuasion: the central route, which involves scrutiny of message content (cognitive), and the peripheral route, which is influenced by superficial cues (emotional).

The application of ELM in promoting pro-environmental behavior is a burgeoning area of research. The ELM can potentially be employed to design more effective environmental campaigns by tailoring the message and its delivery based on the target audience's propensity for elaboration.

For example, for audiences inclined towards high elaboration, environmental campaigns could concentrate on providing robust, evidence-backed arguments about the advantages of pro-environmental behavior. Conversely, for audiences inclined towards low elaboration, campaigns could utilize peripheral cues, such as endorsements from well-known figures or appealing visuals.

Balderjahn et al. (2023) and Boenke et al. (2022) have used ELM to efficaciously tackle overconsumption and reduce meat consumption, leading consumers to manifest intentions to change their behavior or even adopt the desirable behavior (e.g., reduced consumption).

2.2.5.1.2.3 FLUENCY THEORY

The concept of Fluency, as it pertains to consumer behavior, suggests that the ease of information processing influences decision-making and attitudes (Labroo & Lee, 2006; Lee & Aaker, 2004; Lee & Labroo, 2004). When information is processed with ease (high fluency), it can lead to positive evaluations, while difficult-to-process information (low fluency) can result in negative evaluations.

In the context of encouraging pro-environmental behavior among consumers, Fluency Theory implies that if pro-environmental messages are adapted to consumers such that those messages are processed easily (increased fluency), it could potentially increase the adoption of such behaviors. For instance, framing the messages that fit with individuals' personal beliefs (e.g., political) (Kidwell et al., 2013), state of mind (e.g., gratitude for having or not having) (Septianto et al., 2020) have been proven to increase the ease of information processing and thus increased their intention to engage in and actual behavior change.

2.2.5.1.2.4 INNOVATION DIFFUSION THEORY

The Diffusion of Innovations theory, popularized by Everett M. Rogers (2014), is a model that explains how new ideas or practices, known as innovations, are

adopted within a social system. An innovation can be any idea, practice, or object that is perceived as new.

The rate at which an innovation is adopted, known as the rate of adoption, is determined by individuals' perceptions of five attributes of the innovation. These include the relative advantage, which is whether an innovation is seen as better than the idea it replaces; compatibility, or how consistent an innovation is with the current values, previous experiences, and needs of potential adopters; complexity, or how difficult an innovation is perceived to be; trialability, or how much an innovation can be experimented with on a limited basis; and observability, or how visible the results of an innovation are to others. The theory also considers other factors that can influence the rate of adoption. These include the type of decision about innovation, the communication channels used to spread the innovation at various stages in the decision-making process, the nature of the social system, and the change agent.

In one study of the sample, Su (2022) describes the adoption of express package recycling (EPR) in South Korea. This study found that the five innovation diffusion characteristics of sustainable marketing innovation services (comparative advantage, compatibility, complexity, trialability, and observability) each has a significant impact on consumers' behaviors – their eventual participation in express packaging recycling. Additionally, in promoting doggy bags as a social innovation in the realm of food waste, Miroso et al. (2018) demonstrated that using the principles of innovation diffusion can facilitate the adoption of desirable behaviors (e.g., usage of doggy bags) among the target consumers.

2.2.5.1.2.5 NUDGE

Nudging, a key theory in behavioral economics and related fields, was introduced by Richard Thaler and Cass Sunstein (Thaler & Sunstein, 2008). This theory suggests that slight changes in how choices are presented can significantly influence behavior. These changes, known as “nudges,” are minor design alterations that predictably modify people’s behavior without restricting any options or altering their economic incentives.

Nudges can be diverse, including changes in the physical environment, the presentation of information, or the default policy. An example of a nudge is the use of default options in forms or online settings, where the default option nudges people towards a particular choice, such as subscribing to a newsletter or buying insurance for a travel ticket.

The concept of nudge has been mobilized in several included articles (Armstrong Soule & Sekhon, 2022; Boenke et al., 2022; Filimonau et al., 2017; Mulcahy et al., 2021), of which one reached the Success level in the hierarchy of effects, and has laid the foundations for designing behavior change interventions that worked.

2.2.5.1.2.6 OPERANT CONDITIONING

Operant conditioning is a theory of learning that explains how behavior is shaped and maintained by its consequences (Catania, 1973; Glenn et al., 1992; Lattal & Perone, 1998; Skinner, 1969). The theory suggests that behavior is shaped by its consequences. Accordingly, behavior that results in changes in the physical or social environment is selected based on its outcomes. An operant, or a set of activities that

yield the same result, is the basic unit of analysis in this framework. For instance, telling a joke can be an operant that is shaped and maintained by positive social responses like laughter, or extinguished by negative responses like silence. The process of operant conditioning involves the use of reinforcement and punishment to increase or decrease the likelihood of a particular behavior occurring in the future.

The operant framework has led to several extensions and applications to human affairs, including the treatment of developmental disorders, interventions for psychopathology, teaching technologies for classrooms, strategies to improve behavior in business and occupational settings, and approaches to reduce substance use and abuse. The theory outlines three types of environmental responses that can follow behavior: neutral operants, reinforcers, and punishers. Neutral operants are environmental responses that neither increase nor decrease the likelihood of a behavior being repeated. Reinforcers are responses that increase the probability of repeated behavior, and they can be either positive or negative. Punishers, on the other hand, are responses that decrease the likelihood of a behavior being repeated.

In the context of included articles, they have been incorporated into gamified apps (Mulcahy et al., 2020, 2021), which proved to be successful in changing consumers' behaviors toward sustainability.

2.2.5.1.2.7 PERCEIVED VALUE THEORY

Perceived value theory, a critical notion in marketing (Boksberger & Melsen, 2011; Hur et al., 2013; Keser et al., 2020; Sánchez-Fernández & Iniesta-Bonillo, 2007), focuses on consumers' overall assessment of the utility of a product based on their

evaluations of what is given and what is taken. The constitution of perceived values has been evolving and multiple (Sánchez-Fernández & Iniesta-Bonillo, 2007). Nonetheless, in this article, it is accepted that there are four main dimensions to consumers' perceived value. Functional value pertains to the practical benefits a product or service providers, such as performance and reliability. Economic value is the perceived worth of a product relative to its cost, often equated with "value for money." Hedonic value is derived from the emotional and psychological benefits a product or service offers, such as joy or excitement. Lastly, social value is the perceived benefit gained from a product or service's ability to enhance one's social self-concept, often linked to improving social status or image. These four pillars provide a framework for understanding what drives consumers' behaviors.

In the included studies, Su et al. (2022) emphasize the role of customers' perceived values and service satisfaction in influencing behaviors, a sentiment echoed by Mulcahy et al. (2021), who show how gamification can make routine tasks enjoyable and inspire sustainable behaviors. These gamified apps not only encourage eco-friendly actions but also provide pleasure, financial advantages, and energy savings, underlining the importance of user involvement and experience. Interestingly, Morgan et al. (2018) found that consumers' buying behavior was driven more by product performance and value for money than by environmental impact. This pattern is consistent across various sustainable products, where functional and economic values, rather than environmental considerations, predominantly influence consumers' purchasing decisions (Schoormans et al., 2018).

In essence, as Mulcahy et al. (2020) articulate, marketers' focus on consumers' personal interests, such as financial concerns, may not appear altruistic. However, if these strategies lead to the accomplishment of broader environmental objectives, then they are undoubtedly worthwhile pursuits.

2.2.5.1.2.8 SELF-DETERMINATION

Self-Determination Theory (SDT) provides a comprehensive understanding of human motivation, personality development, and well-being (Ryan & Vansteenkiste, 2023). The theory maintains that supporting individuals' basic needs for competence, relatedness, and autonomy is crucial for all aspects of personal and societal functioning. SDT has found applications in diverse fields, including sports and exercise, and has significantly influenced contemporary behavioral science.

The research conducted by Armstrong Soule and Sekhon (2022) and Mulcahy et al. (2020) demonstrates that the fulfillment of self-determination needs can indeed stimulate pro-environmental behaviors such as reducing consumption and energy use. This effect is particularly pronounced when marketers appeal to these self-determination needs in their campaigns, like positive feedback from gamified apps or social recognition from others. This suggests that marketing activities that can tap into self-determination needs are effective in promoting pro-environmental behaviors.

2.2.5.1.2.9 SOCIAL IDENTITY THEORY

Social Identity Theory (SIT), formulated by Henri Tajfel and John Turner, is a significant social psychological theory that elucidates intergroup conflict through the lens of group-based self-definitions. The theory posits that individuals derive their

identities from their social groups, which serves to fortify their self-identity. This process involves categorizing oneself as part of an “in-group” while distinguishing from an “out-group”, often leading to a positive bias towards one’s own group (Islam, 2014).

The theory further explains that this results in a collective identity based on group membership, which is often perceived positively. This can lead to biased and exaggerated perceptions of differences between groups. Recent research, however, suggests that social identification may not necessarily lead to out-group degradation, but rather emphasizes positive in-group regard.

Armstrong Soule and Sekhon (2022), Boenke et al. (2022), Trudel et al. (2016), White et al. (2013) have leveraged SIT in their studies to induce pro-environmental behaviors among target populations. Highlighting one’s affiliation with a certain group (e.g., conspicuous signaling of environmentally conscious and altruistic consumers reducing their consumption for the sake of the planet), using a neutral source of information (e.g., researchers) instead of an outgroup member (e.g., vegan activists) to communicate pro-environmental consumption (e.g., meat consumption reduction), attaching a certain identity to everyday products (e.g., printing a US flag on a plastic cup) to encourage recycling of those products, or using the appeal most compatible with their identity (e.g., individual vs collective self) have all influenced consumers’ intention to engage in desirable behaviors.

2.2.5.1.2.10 SOCIAL INFLUENCE

Not strictly a theory in itself, social influence refers to the effect of one person or group on another's beliefs, attitudes, or actions (Demeulenaere, 2015; Moussaïd et al., 2013). It pervades various aspects of one's life, including but not limited to parents, peers, teachers, etc. For example, during adolescence, one's peers can exert considerable influence on one's behavior (e.g., smoking uptake). Additionally, in terms of opinion formation, social influence can affect the way in which individuals adopt, adapt, revise, or change their beliefs; thus, their behavior is because of interactions with other people. This phenomenon has been observed in cases such as cultural markets, ideas and innovation diffusion, or fears amplification during pandemics (Rogers, 1962, 1976).

Among the included articles, Balderjahn et al. (2023) and Young et al. (2018) utilized social influences via norms (e.g. what other people are doing), opinion leaders (e.g., what desirable behaviors role models would do), and social networks (e.g., how other people are doing the desired people) and achieved in creating the intention and actual behavior among consumers (e.g., less consumption and food waste reduction) (Coleman, 1988, 1990).

2.2.5.1.2.11 SOCIAL MARKETING

As aforementioned, social marketing continues to demonstrate its effectiveness as a reliable strategy for influencing consumer behavior (French et al., 2011). Primarily, social marketing (SM) consists of applying marketing principles to promote voluntary behavioral changes among individuals to benefit themselves or the

society/environment (French & Russell-Bennett, 2015; Hastings & Angus, 2011; Wymer et al., 2006) in three steps: Co-create, Build, and Engage (Lefebvre, 2012; Rundle-Thiele et al., 2021; Van Hierden et al., 2022). Social marketing programs are constructed among all stakeholders and their implementations are executed with the help of various organizations and/or businesses.

Building on the discussion from the previous section, social marketing remains a potent tool in the realm of consumer behavior change. This strategy leverages the principles of traditional marketing, but with a focus on promoting socially beneficial behaviors and attitudes. By understanding the target audience and crafting messages that resonate with their values and needs, social marketing can effectively drive significant shifts in consumer behavior.

For instance, Miroso et al. (2018) focused on doggy bags to reduce food waste, using a mixed-method approach to understand consumer attitudes and recommending behavior change tools. Kim et al. (2020) applied a consumer-oriented approach for food waste reduction campaigns, involving consumers in the campaign development process through co-design sessions. Filimonau et al. (2017) used menu design as a tool to influence consumer choices towards more sustainable and healthy food options, conducting a field experiment with consumers and providing policy recommendations. All authors highlighted the importance of understanding consumer behavior to design effective interventions.

2.2.5.1.2.12 THEORY OF PLANNED BEHAVIOR

The Theory of Planned Behavior (TPB), introduced by Ajzen (1991), is a key framework in understanding a wide array of human behaviors, especially in consumer behavior. It suggests that individuals are motivated by self-interest. The theory proposes that attitudes, subjective norms (interpreted as personal rewards or punishments), and perceived behavioral control are interconnected (Ajzen & Fishbein, 1972). This interconnection significantly influences individuals' intentions, which subsequently shape their behaviors (Weinstein, 1988). TPB argues that behaviors are not spontaneous or impulsive. Instead, they are planned actions influenced by a combination of personal attitudes, societal norms, and the perceived ability to control one's actions (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1982).

Among the included articles, Su et al. (2022) used the theory to understand how consumers' attitudes towards SMI services influence their participation in express package recycling, suggesting that attitudes are shaped by perceived value and satisfaction with the services. Sandhu et al. (2021) explored factors influencing pro-environmental behavior, finding that strong environmental messaging can affect attitudes towards disposable coffee cups. Balderjahn and Hoffmann (2023) used menu design to affect consumers' attitude, subjective norm, and/or perceived behavioral control toward reduced consumption, influencing consumer choices towards more sustainable options.

2.2.5.1.3 THEORIES MATRIX

Inspired by the concept matrix proposed by Webster and Watson (2002), the theories used by the included articles are summarized as follows.

| | Armstrong et al. (2022) | Balderjahn et al. (2023) | Boenke et al. (2022) | El et al. (2021) | Filimonau et al. (2017) | Kidwell et al. (2013) | Kim et al. (2020) | McGouran et al. (2016) | Mirza et al. (2018) | Morgan et al. (2018) | Mulcahy et al. (2020) | Mulcahy et al. (2021) | Nicolau et al. (2022) | Phipps et al. (2011) | Ratay et al. (2022) | Sandhu et al. (2021) | Septianto et al. (2020) | Su et al. (2022) | Tarabashkina et al. (2022) | Trudel et al. (2016) | Van Herpen et al. (2021) | White et al. (2013) | White et al. (2014) | Whittaker et al. (2021) | Whittaker et al. (2021) | Young et al. (2018) | |
|----------------------------------|----------------------------|-----------------------------|-------------------------|---------------------|----------------------------|--------------------------|----------------------|---------------------------|------------------------|-------------------------|--------------------------|--------------------------|--------------------------|-------------------------|------------------------|-------------------------|----------------------------|---------------------|-------------------------------|-------------------------|-----------------------------|------------------------|------------------------|----------------------------|----------------------------|------------------------|-----|
| Affect as information theory | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Behavioral economics | | | | | | | | | | | | Yes | | | | | | | | | | | | | | Yes | |
| Behavioral learning hierarchy | | | | | | | | | | | | | | | | | | | | | | | | | | Yes | |
| Business model innovation | | | | | | | | | Yes | | | | | | | | | | | | | | | | | | |
| Case involvement | | | | | | | | | | | | Yes | | | | | | | | | | | | | | | |
| Co-evolutionary framework | | | | | | | | | Yes | | | | | | | | | | | | | | | | | | |
| Co-creation/Co-design | | | | Yes | | | Yes | | | | | | | | | | | | | | | | | | | | |
| Cognitive dissonance | | | Yes | | | | | | | | | | | | | | | | | | | | | | | | |
| Constructivist theory | | | | | | | | | | | | | | | | | Yes | | | | | | | | | | |
| Consumer learning | | | | | | | | | | | | Yes | | | | | | | | | | | | | | | |
| Creativity priming | | | | | | | | | | | | | | | | | | | Yes | | | | | | | | |
| Customer value loyalty framework | | | | | | | | | | | | | | | | | | | | | | | | | Yes | | |
| Descriptive norms | | | | | | | | | | | | | | | | | | | | | | | Yes | | | | |
| Elaboration likelihood model | Yes | Yes | | | | | | | | | | | | | | | | | | | | | | | | | |
| Environmental knowledge | | | | | | | | | | | | | Yes | | | | | | | | | | | | | Yes | |
| Flow | | | | | | Yes | | | | | | | | | | | | Yes | | | | | | | | | |
| Fluency theory | | | | | | | | | | | Yes | | | | | | | | | | | | | | | | |
| Gamification | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Goal compatibility theory | | | | | | | | | | | | | | | | | | | | | | | Yes | | | | |
| Goal framing theory | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Identity theory | | | | | | | | | | | | | | | | | | Yes | | | | | | | | | |
| Identity threat theory | | | | | | | | | | | | | | | | | | | | Yes | | | | | | | |
| Imagination theory | | | | | | | | | | | | | | | | | | | | Yes | | | | | | | |
| Information provision | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes |
| Innovation diffusion | | | | | | | | Yes | | | | | | | | | | | Yes | | | | | | | | |
| Inspiration theory | | | | | | | | | | | | | | | | | | | | Yes | | | | | | | |
| Institutional theory | | | | | | | | | | | | | | | | Yes | | | | | | | | | | | |
| Marketing systems | | | | | | | | | | | | | | Yes | | | | | | | | | | | | | |
| Moral foundations theory | | | | | | Yes | | | | | | | | | | | | | | | | | | | | | |
| Moral licensing | | Yes | | | | | | | | | | | | | | | | | | | | | | | | | |
| Need for status | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Non-consumption | | | | | | | | Yes | | | | | | | | | | | | | | | | | | | |
| Norm activation | | | Yes | | | | | | | | | Yes | | | | | | | | | | | | | | | |
| Nudge | Yes | | Yes | | Yes | | | | | | | Yes | | | | | | | | | | | | | | | |
| Operant conditioning | | | | | | | | | | | Yes | Yes | | | | | | | | | | | | | | | |
| Opt-in strategy | | | | | | | | | | | | | | | | | | | | | | Yes | | | | | |
| Opt-out strategy | | | | | | | | | | | | | | | | | | | | | | Yes | | | | | |
| Perceived value theory | | | | | | | | | | | Yes | | | | | | | | Yes | | | | | | | | |
| Planned behavior | | | | | | | | | | | | | | | | | | | | | | Yes | | | | | |
| Preference for consistency | | | Yes | | | | | | | | | | | | | | | | | | | | | | | | |
| Previous experience | | | | | | | | | | | | | Yes | | | | | | | | | | | | | | |
| Price consciousness | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Privacy concern | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prosocial behavior | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Proenvironmental behavior | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protective motivation model | | Yes | | | | | | | | | | | | | | | | | | | | | | | | | |
| Public policy framework | | | | | | | | | | | | | | Yes | | | | | | | | | | | | | |
| Rebound effect | | Yes | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reference group theory | | | | | | | | | | | | | | | | | | | | | | | | | | Yes | |
| Self-construal theory | | | | | | | | | | | | | | | | | | | | | | | Yes | | | | |
| Self-affirmation theory | | | | | | | | | | | | | | | | | | | | | | | | | Yes | | |
| Self-determination | Yes | | | | | | | | | | Yes | | | | | | | | | | | | | | | | |
| Self-perception | | Yes | | | | | | | | | | | | | | | | | | | | | | | | | |
| Signaling theory | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Social comparison theory | | | | | | | | | | | | | | | | | | | | | | | | | | Yes | |
| Social identity theory | Yes | | Yes | | | | | | | | | | | | | | | | | | Yes | | Yes | | | | |
| Social influence | | Yes | | | Yes | | Yes | | Yes | | | | | | | | | | | | | | | | | | Yes |
| Social marketing | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Social norm theory | | | | | | | | | | | | | | | | | | | | | | | | | | | Yes |
| Social practice theory | | | | | | | | | | Yes | | | | | | | | | | | | | | | | | |
| Spillover theory | | | | | Yes | | | | | | | | | | | | | | | | | | | | | | |
| Symbolic consumption | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Theory of planned behavior | | Yes | | | | | | | | | | | | | | | Yes | | | | | | | | | | Yes |
| Transrational model | | | | | Yes | | | | | | | | | | | | | | Yes | | | | | | | | |
| Value in behavior framework | | | | | | | | | | | | | | | | | | | | | | | | | | Yes | |
| Voluntary simplicity | | | | | | | | Yes | | | | | | | | | | | | | | | | | | | |
| Warm glow giving effect | Yes | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 27 Matrix of the theories employed by included articles.

2.2.5.2 METHODOLOGICAL APPROACHES

2.2.5.2.1 NUMBER OF STUDIES PER ARTICLE

Overall, there are fifty-eight studies conducted in twenty-six articles. The following chart shows the number of articles that conduct the given number of studies.

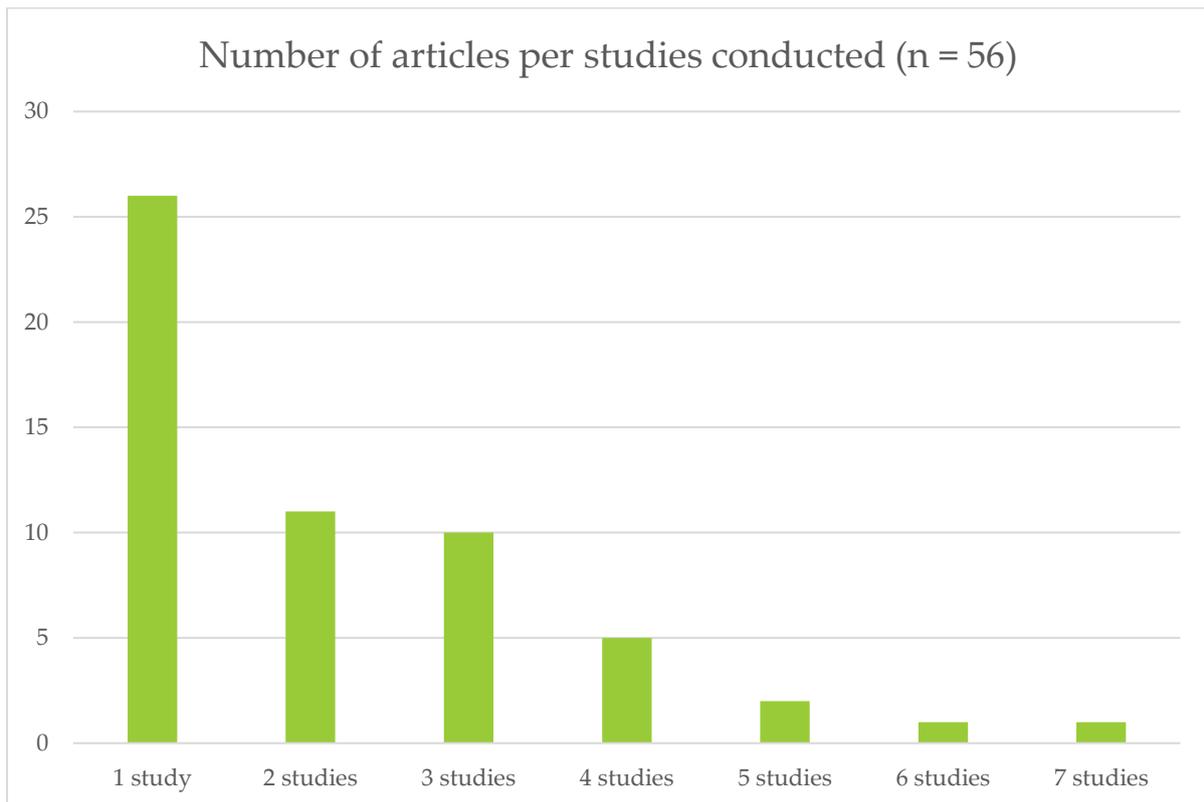


Figure 28 Overview of the number of studies conducted by included articles.

Most articles, specifically twenty-six, conducted only one study. This suggests that a single, comprehensive study is often sufficient for the purposes of these articles. However, a considerable number of articles conducted more than one study. There were eleven articles that conducted two studies and ten articles that conducted three studies. This indicates that multiple studies are sometimes necessary to provide a more robust and comprehensive understanding of the research topic.

As the number of studies conducted increases, the number of articles decreases. There were five articles that conducted four studies, two articles that conducted five studies, and only one article each for six and seven studies. This trend could be attributed to the increased complexity, time, and resources required for conducting more studies. Therefore, while most articles tend to conduct a single study, there is a considerable number that conduct multiple studies, demonstrating the diversity in methodological approaches.

2.2.5.2.2 NUMBER OF STUDIES PER METHODOLOGY

The most frequently utilized methodology is the Online experiment, evidenced in eighteen articles. This prevalence suggests that online experiments are a favored approach in this research domain, potentially attributable to their convenience, extensive reach, and capacity for substantial data collection. The Laboratory experiment methodology emerges as the second most common, implemented in thirteen articles. Laboratory experiments offer a high degree of control over variables, rendering them an invaluable method for the empirical testing of specific hypotheses. Ranking third are Field experiments, employed in seven articles. Field experiments are conducted within the natural environment of the phenomena under investigation, enhancing the ecological validity of the findings.

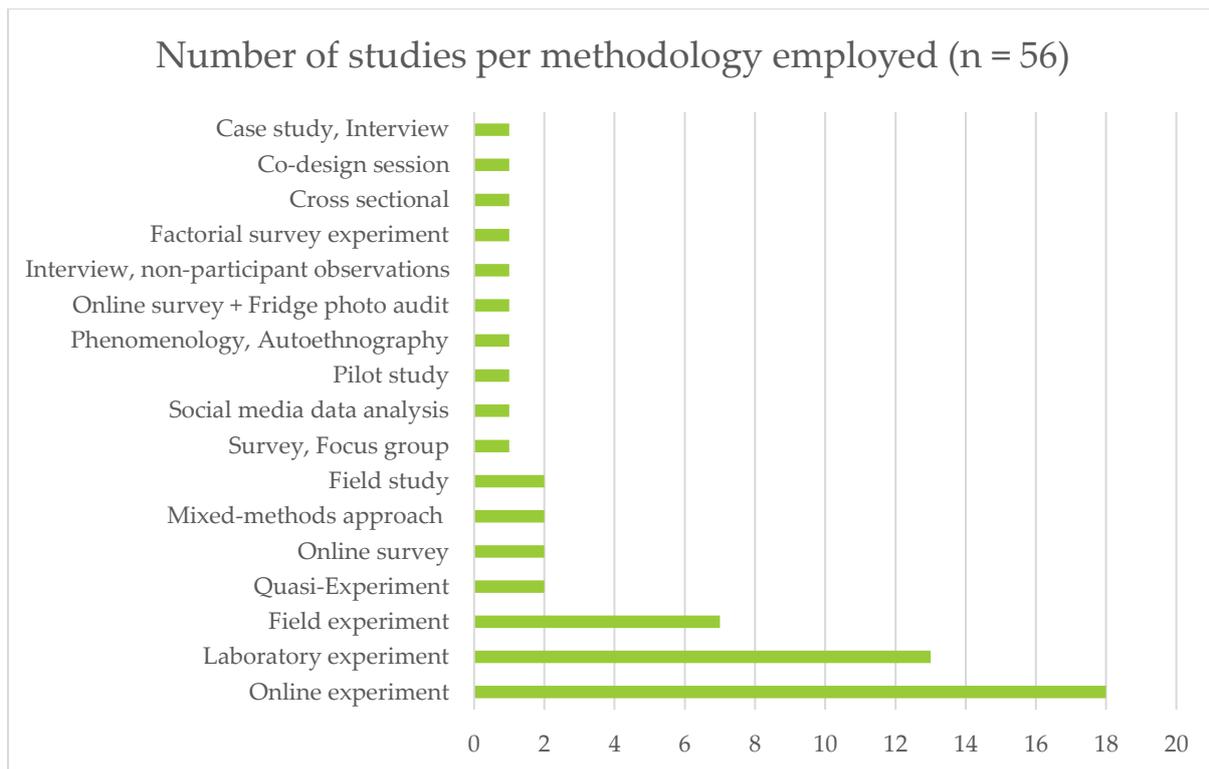


Figure 29 Overview of the most employed methodologies of the included articles' studies.

A variety of other methodologies, including Quasi-Experiment, Online survey, and Mixed-methods approach, have also been employed across multiple articles, indicating a diversity of methodological approaches within the field. Certain methodologies, such as social media data analysis and Phenomenology/Autoethnography, have been uniquely applied in a single article.

Most of the studies mentioned in the text employ quantitative methods, with a total of fifty studies falling under this category. These studies use methodologies such as online experiments, laboratory experiments, field experiments, quasi-experiments, online surveys, field studies, survey focus groups, social media data analysis, pilot studies, online survey plus fridge photo audits, factorial survey experiments, and cross-sectional studies. On the other hand, qualitative methods are used in a smaller number of studies, with a total of three studies. These studies use methodologies such

as phenomenology, autoethnography, case studies, interviews, and non-participant observations.

In addition to the quantitative and qualitative methods, there are two studies that employ a mixed-methods approach. Lastly, there is one study that uses co-design session methodology. This method is not clearly defined as either quantitative or qualitative and might depend on the specific context of the study. To sum up, there is a diverse array of methodologies used in the studies, with a dominant preference for quantitative methods. Qualitative and mixed-methods approaches are also represented but are much fewer in quantity.

2.2.5.2.3 LONGITUDINAL VS ONE-SHOT INTERVENTIONS

Out of the 56 studies conducted, 18 ($\pm 32\%$) of them incorporate a longitudinal aspect. The duration of these interventions varies widely, ranging from as short as 45 minutes to as long as a year. To provide a clearer picture, the intervention durations are converted into days. For this purpose, we will use the following conversions: a week is equivalent to 7 days, a month is 30 days, and a year is 365 days. Any intervention lasting less than a day are counted as a full day. For interventions lasting within a range of different durations, the average of the shortest and longest durations will be counted. The chart below illustrates this distribution of intervention duration.

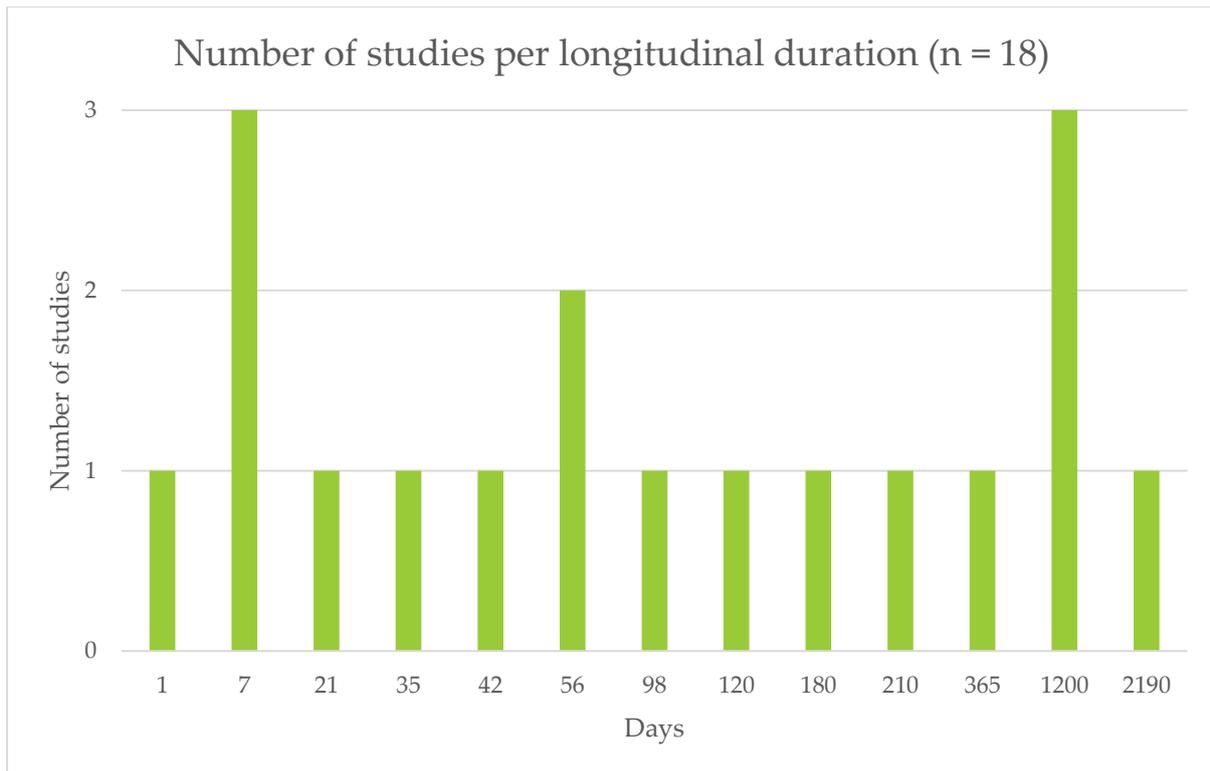


Figure 30 Overview of the intervention durations of longitudinal studies of included articles.

The broad spectrum of study durations, from as brief as a day to as lengthy as several years, indicates that the selection of study length is determined by the unique research questions and the context of each study. It is vital to acknowledge that definitive conclusions about the success of interventions aimed at changing consumer behavior can only be drawn from longitudinal studies. However, the observation that only about one-third of the studies are longitudinal points to a significant gap in such extended investigations. This finding suggests an opportunity for further exploration and research in this area.

2.2.5.3 THEMATIC APPROACHES

This section provides a comprehensive overview of the various domains that have been explored in academic articles related to consumer behavior. These domains, which range from household behaviors and waste management to food waste and

anti-consumption, reflect the diverse range of topics that researchers have focused on in their quest to understand and influence consumer behavior. Specifically, the different sustainability domains researched are:

- Household behaviors: This domain appears the most frequently, being mentioned six times. It shows a significant focus on behaviors within the household context, which could include a wide range of activities such as recycling, energy use, and consumption habits.
- Waste management: This domain is mentioned five times, indicating a strong emphasis on how waste is managed. This involves studies on recycling behaviors, waste reduction strategies, and the disposal of diverse types of waste.
- Food waste: Mentioned 3 times, this domain involves studies on behaviors related to the disposal of food, strategies to reduce food waste, and attitudes towards food waste.
- Anti-consumption, Grocery shopping, Meat consumption, Food service provision, Recycling, Consumer culture, Online food retail, Conservation, Reusables: Each of these domains is mentioned once, suggesting that there are fewer communal areas of focus in the articles. These domains cover a wide range of topics, from shopping and consumption habits to attitudes towards recycling and conservation.

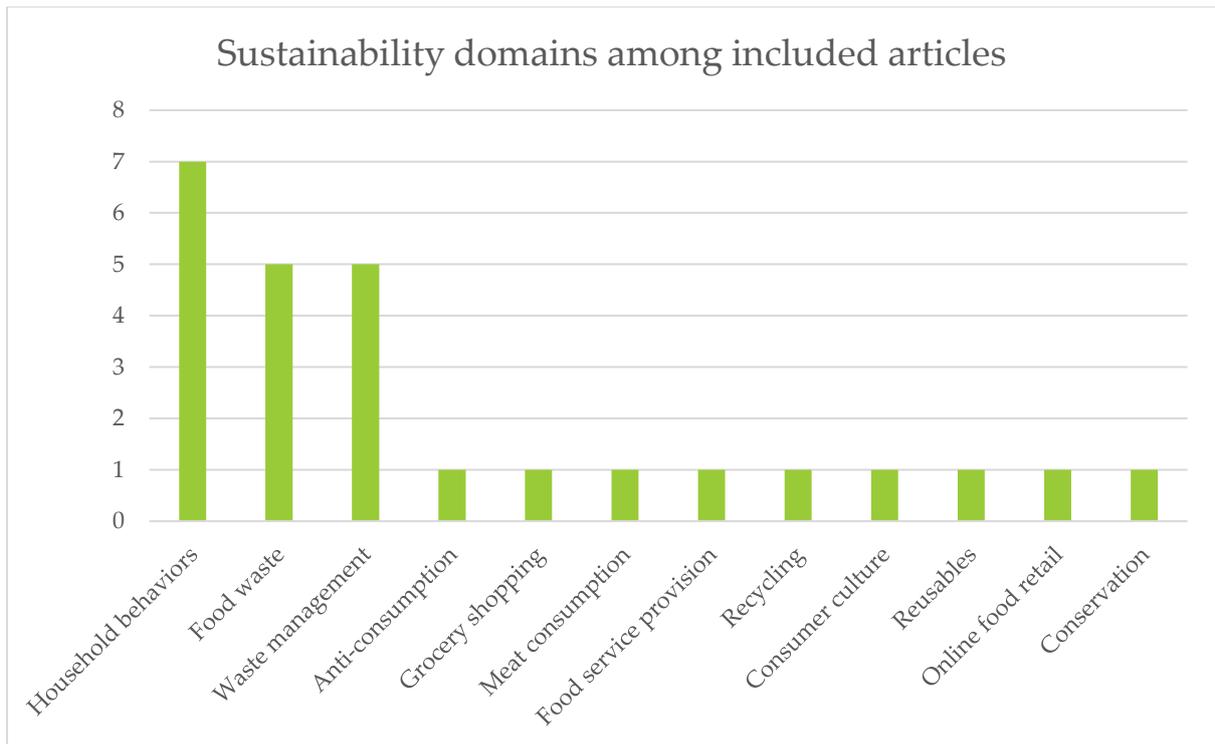


Figure 31 Landscape of sustainability domains investigated by included articles.

2.2.5.4 LOCATIONS OF THE STUDIES

The geographical distribution of studies concerning sustainable or pro-environmental consumer behaviors provides an interesting perspective on the global research landscape in this area.

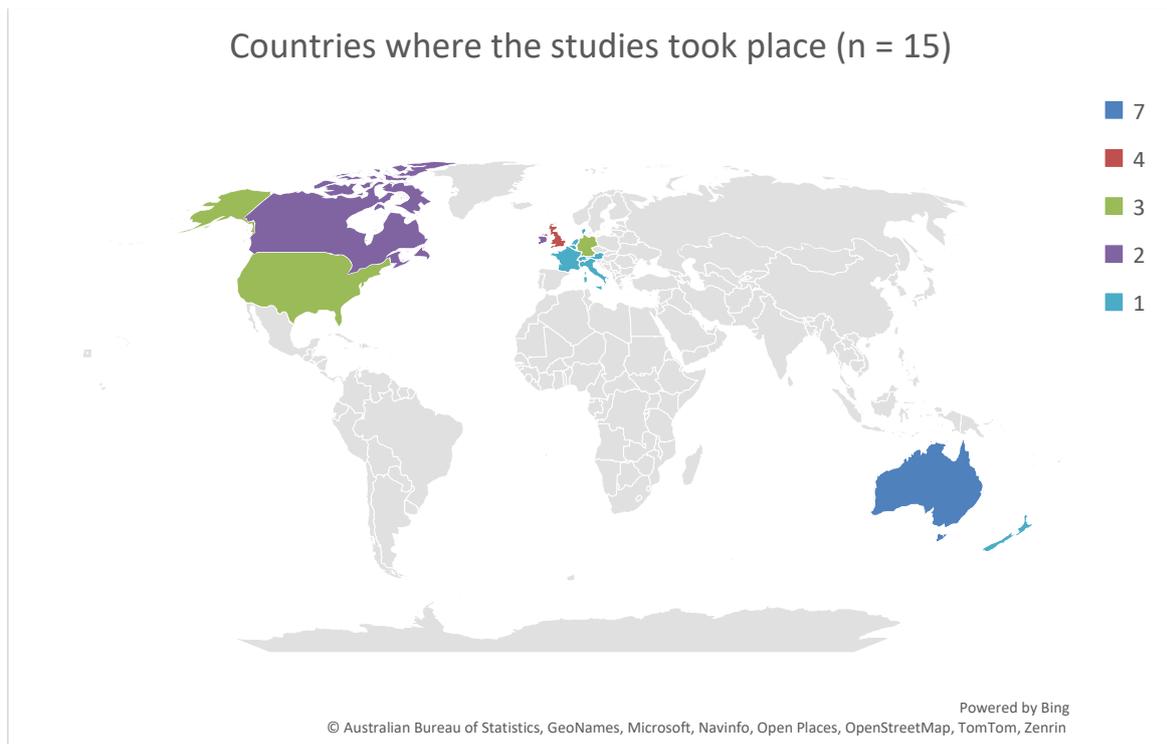


Figure 32 Location of the studies in included articles.

Australia emerges as a significant hub for such research into this question, hosting the highest number of studies at seven. This suggests a robust focus on sustainable consumer behaviors within the country. The United Kingdom follows with four studies, indicating a strong interest in this area within its borders. Germany and the United States each contribute three studies, further demonstrating the global interest in promoting sustainable consumer behaviors.

Canada, Ireland, and Online platforms, which potentially encompass multiple locations, each account for two studies. This highlights the expanding scope of research, transcending physical boundaries and leveraging digital platforms.

Countries including Austria, Belgium, Denmark, France, Italy, Korea, the Netherlands, New Zealand, and Switzerland each account for one study. While these

countries have fewer studies, their contributions are valuable and add to the diversity of the research in this field.

Geographical distribution underscores the worldwide interest in understanding and promoting sustainable consumer behaviors. However, it is important to note that the number of studies conducted in a particular location does not necessarily reflect the extent of sustainable behaviors in these locations, but rather where the research has been conducted. Additionally, the only language included in this study is English, which can explain the dominance of English-speaking countries in the studies. As such, there exists many opportunities for research into consumer behavior change interventions in other countries.

2.2.5.5 SINGLE PAPER META-ANALYSIS OF A SUCCESS ARTICLE

Of the 5 articles that reached the Success level on Bauman hierarchy of effects, Elf et al. (2021), Kidwell et al. (2013), and Mulcahy et al. (2020) reports quantitative behavioral data that could be used for a synthesis of evidence via a meta-analysis (Grewal et al., 2018). However, each article investigates different phenomena, with different scales, percentages, and techniques. In other words, the studies are not homogeneous enough to conduct a conventional meta-analysis.

Nevertheless, the study of Elf et al. (2021), investigating different pro-environmental behaviors via their Study 2 and Study 3 (with the presence of control groups), could be meta-analyzed using the technique Single-Paper Meta-analysis (SPM) (McShane & Böckenholt, 2017). SPM is a technique for jointly analyzing multiple studies within a single paper, typically analyzed separately. SPM gives a

graphical and quantitative summary of the studies, enabling the evaluation of the effects of the studies and helps with future studies' sample size analyses.

Following is the forest plot generated from the interventions of Elf et al. (2021), which essentially is a multifaceted behavior change project by IKEA that aimed to help consumers adopt pro-environmental behaviors and lifestyle changes at home through various strategies (e.g., goal setting, information provision, financial incentives, workshops, feedback, and social support). It shows the effect of different pro-environmental behaviors on Cohen's d and the estimated overall effect size and confidence interval using a random-effects model.

The results indicate that the overall effect size of pro-environmental behaviors on Cohen's d is 0.20, with confidence intervals going from 0.01 to 0.41, which is small but statistically significant ($p = 0.01$). The heterogeneity of the studies is high ($I^2 = 0.84$), with the largest effects being observed for "purchase of green" ($d = 0.83$) in Study 2, "hire, share or lend" ($d = 0.62$) in study 2, "repair or upcycle" ($d = 0.61$) in study 2. The negative effect sizes are measured for "switch of lights" ($d = -0.34$) and "switch off appliances" ($d = -0.17$) in study 2. No part of the diamond, nor its 95% confidence intervals, touches the line with no effect. Therefore, we can conclude that the interventions in the study of Elf et al. (2021) are empirically proven to have a positive effect on increasing pro-environmental behaviors among consumers.

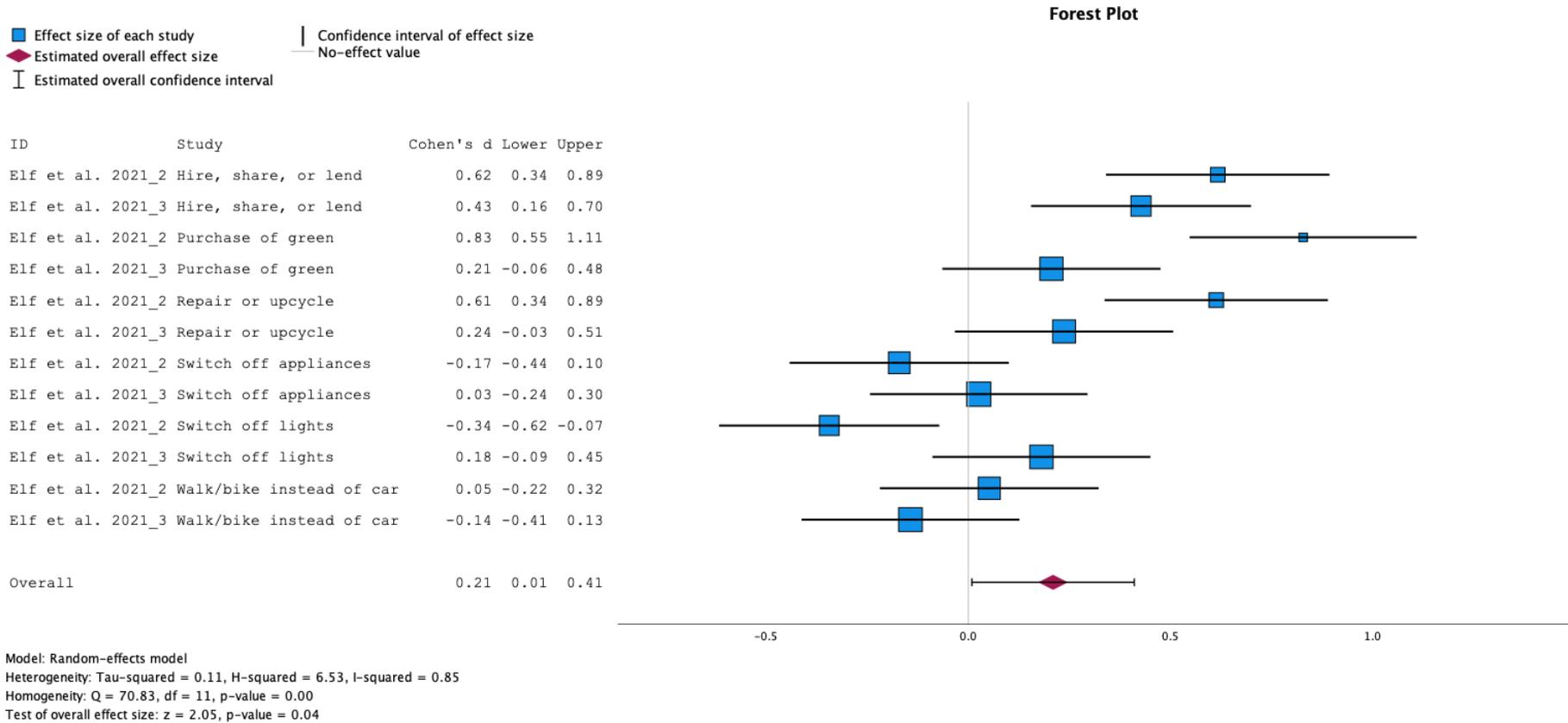


Figure 33 Forest plot of the meta-analysis of the studies by Elf et al. (2021).

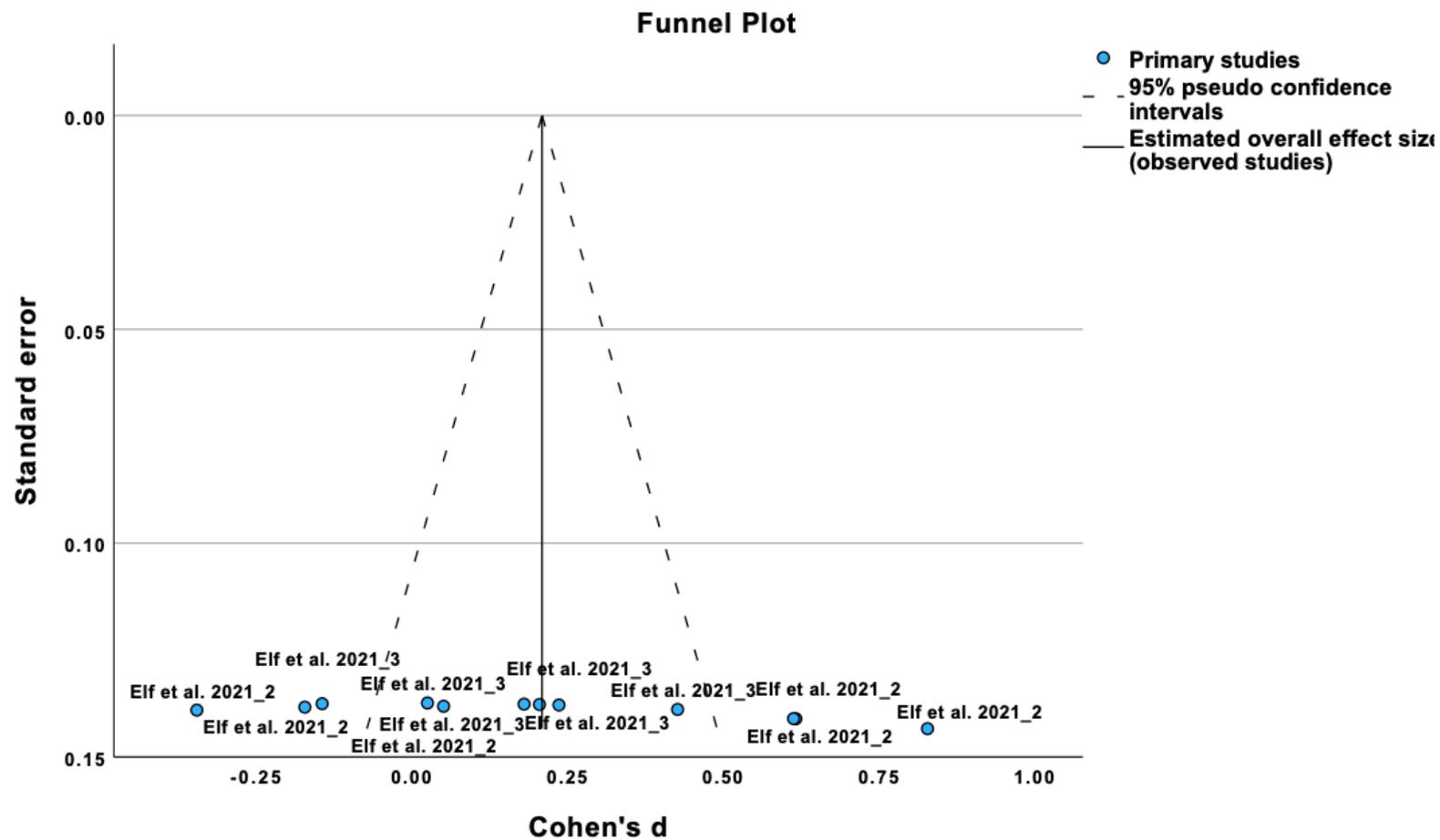


Figure 34 Funnel plot of the meta-analysis of the studies conducted by Elf et al. (2021)

The funnel plot, being symmetric, suggests that there is no evidence of publication bias, as the plot is symmetrical, and most studies are within the 95% pseudo confidence intervals. However, there is some evidence of heterogeneity, as the effect sizes vary

widely across studies and some outliers are present. This indicates that the intervention may have different effects depending on the study characteristics or context.

2.2.6 KEY INSIGHTS FROM THIS SLR

The role of identity and self-construal in disposal decisions. The studies by Trudel et al. (2016), Nicolau et al. (2022), and Ratay et al. (2022) demonstrate that consumers' disposal decisions are influenced by their identity and self-construal, such as how they perceive themselves and their relationship with others. For example, consumers who have a strong or positive connection with a product or a brand are more likely to dispose of it in a responsible way, such as recycling or donating, than those who do not. Therefore, marketing researchers should consider the identity and self-construal of consumers in their sustainability marketing interventions, to further investigate a sense of attachment and responsibility for the products consumers consume.

The impact of social norms and social influence on sustainable consumption. The studies by Kim et al. (2020), Morgan et al. (2018), Van Herpen et al. (2021), White et al. (2013), and White et al. (2014) show that social norms and social influence can have a significant effect on consumers' attitudes and behaviors toward sustainability issues. For example, consumers are more likely to reduce food waste, use reusable cups, and compost if they perceive that these behaviors are common, expected, or approved by others, especially by their reference groups or role models. As such, marketing researchers and practitioners should leverage social norms and social influence in their sustainability marketing campaigns, to create a sense of social pressure and social support for consumers to adopt sustainable behaviors.

Consumer education and awareness are crucial but not sufficient for sustainable behavior change. The studies by Balderjahn et al. (2023), Boenke et al. (2022), and Septianto et al. (2020) suggest that providing consumers with information about the environmental impacts of their behaviors can increase their understanding and concern about sustainability issues. However, this does not always translate into action, due to various barriers such as convenience, cost, habit, and social norms. Therefore, it is important to combine education with other strategies, such as incentives, social influence, and structural changes, to facilitate and reinforce sustainable behaviors.

The role of information and communication in sustainable consumption. The studies by Boenke et al. (2022), Filimonau et al. (2017), McGouran et al. (2016), Phipps et al. (2011), and Van Herpen et al. (2021) suggest that consumers' behavior is influenced by the information and communication they receive, such as the content, format, and source of the messages. For example, consumers are more likely to adopt sustainable behaviors if they receive information and communication that is relevant, clear, credible, and persuasive. Therefore, marketers should design and deliver effective information and communication in their sustainability marketing interventions, to create a sense of awareness and understanding among consumers.

The effectiveness of sustainable marketing interventions varies depending on the type, source, context, and frequency of the messages, as well as the characteristics of the consumers and the behaviors. For example, the studies by Balderjahn et al. (2023),

Boenke et al. (2022), and Septianto et al. (2020) show that different types of appeals (informative, social, emotional, dynamic norm) have different effects on consumers' intentions and behaviors, and that these effects are moderated by factors such as shopping spending, source credibility, message framing, and setting. Similarly, the studies by Mulcahy et al. (2020), Mulcahy et al. (2021), and Whittaker et al. (2021) show that different types of game design elements (points, badges, trophies, educational messages) have different effects on consumers' knowledge, attitudes, and behaviors, and that these effects are mediated by factors such as flow, customer engagement, and value-in-behavior. Moreover, the studies by Young et al. (2018) and Phipps et al. (2011) show that the frequency and variety of communication channels can influence the effectiveness and sustainability of the interventions, and that repeated and multi-channel communication can enhance consumer awareness and behavior change.

The use of monetary incentives, rewards, or penalties can have mixed effects on sustainable behavior outcomes, depending on the size, type, and mechanism of the incentives, as well as the consumer preferences and values. For example, the studies by Nicolau et al. (2022), Ratay et al. (2022), and Sandhu et al. (2020) show that monetary incentives can increase consumers' willingness to use reusable cups, return smartphones, or use doggy bags, but only if the incentives are sufficiently large, convenient, and aligned with consumers' environmental awareness and price consciousness. However, the studies by Balderjahn et al. (2023) and Morgan et al. (2018) show that monetary

incentives can also have negative effects, such as increasing the rebound effects of consume-less appeals or reducing the intrinsic motivation of consumers to adopt sustainable behaviors.

The challenges and limitations of sustainability marketing interventions. The studies by Elf et al. (2021), Filimonau et al. (2017), McGouran et al. (2016), Nicolau et al. (2022), Phipps et al. (2011), and Young et al. (2018) reveal some of the challenges and limitations that sustainability marketing interventions face in achieving their desired outcomes. For example, consumers may have low awareness, interest, or understanding of the sustainability issues or the interventions; they may face barriers such as cost, convenience, or availability; they may experience negative emotions such as guilt, shame, or frustration; they may exhibit rebound effects or spillover effects that offset the benefits of the interventions; or they may revert to their old habits or preferences after the interventions end. Therefore, marketers should be aware of these challenges and limitations and design their sustainability marketing interventions accordingly, to address the potential obstacles and enhance the effectiveness and sustainability of the interventions.

The involvement and collaboration of multiple stakeholders, such as businesses, governments, NGOs, and consumers, is essential for achieving systemic and lasting changes in sustainable consumption and production. For example, the studies by Elf et al. (2021), Morgan et al. (2018), and Phipps et al. (2011) show that businesses can play a

key role in supporting and facilitating sustainable behavior changes among their customers, by providing them with products, services, information, and incentives that enable and encourage them to live more sustainably. However, the studies also show that businesses alone cannot achieve the desired level of change, and that they need to collaborate with other actors, such as governments, NGOs, and consumers, to create a supportive and coherent policy and institutional environment that can address the structural and systemic barriers and drivers of sustainable consumption and production.

The role of technology and innovation in promoting sustainable behaviors is increasingly recognized. For instance, the studies by Mulcahy et al. (2020), Mulcahy et al. (2021), and Whittaker et al. (2021) highlight the potential of gamification and digital platforms in enhancing consumer engagement and learning about sustainability issues. These technologies can provide interactive and personalized experiences, instant feedback, and social connectivity, which can motivate and empower consumers to make more sustainable choices. They show that gamification and co-creation can enhance the value and engagement of consumers in sustainability marketing interventions, by providing fun, feedback, challenge, and choice. For example, consumers who played a gamified app or co-designed a sustainability campaign reported higher enjoyment, knowledge, and behavioral intentions than those who did not. The studies also highlight the importance of considering different game design elements, such as points, feedback, challenge, and character, and how they affect several types of consumers, such as high

vs. low energy users, and high vs. low dispositional flow consumers. Therefore, marketers should use gamification and co-creation as effective tools to motivate and educate consumers about sustainable consumption. Additionally, with the advent of artificial intelligence (AI), marketers can leverage the power of data and analytics to create more personalized and relevant sustainability messages for consumers, a key point concluded by many articles from the included sample. AI can help marketers segment and target consumers based on their preferences, behaviors, and attitudes towards sustainability, and deliver customized content and offers that match their needs and values. AI can also help marketers measure and optimize the effectiveness of their sustainability campaigns, by tracking and analyzing consumer responses and feedback, and adjusting their strategies accordingly.

The need for continuous monitoring and evaluation of sustainability marketing interventions. The studies by Elf et al. (2021) and McGouran and Prothero (2016) emphasize that effective sustainability marketing interventions are not one-off activities, but ongoing processes that require regular monitoring and evaluation to assess their effectiveness, identify their strengths and weaknesses, and make necessary adjustments or improvements. This can be done through various methods, such as surveys, interviews, focus groups, observations, experiments, and data analysis, which can provide valuable feedback and insights for marketing practitioners to refine and optimize their sustainability marketing interventions.

2.3 DISCUSSIONS AND CONCLUSIONS

2.3.1 THEORETICAL CONTRIBUTIONS AND IMPLICATIONS

2.3.1.1 THEORETICAL IMPLICATIONS

2.3.1.1.1 APPROACHES

The theories employed in consumer behavior change interventions empirically proven to be effective can be divided into two approaches, the Intra-Personal Approach, or those that focus on changing consumers from the inside, and Inter-Personal Approach, or those that seek to change consumers from the outside. Specifically:

Intra-Personal Approach: This approach is centered on the individual and their internal states. It considers aspects such as a person's beliefs, motivations, behaviors, and internal mechanisms. For example, it might look at how a person's beliefs about themselves influence their actions, or how their motivations drive their behavior. This approach recognizes that everyone is unique, with their own set of perspectives that influence their actions. Example: Affect as Information Theory, Behavioral Economics, Cognitive Dissonance, Construal Level Theory, Elaboration Likelihood Model, Flow, Goal Compatibility Theory, Identity Theory, Identity Threat Theory, Imagination Theory, Need for Status, Preference for Consistency, Self-Construal Theory, Self-Affirmation Theory, Self-Determination, Self-Perception, Theory of Planned Behavior, Behavioral Learning Hierarchy, Consumer Learning, Previous Experience, Price Consciousness, Privacy Concern, Proenvironmental Behavior, Environmental Knowledge, Gamification,

Moral Foundations Theory, Moral Licensing, Operant Conditioning, Opt-In Strategy, Opt-Out Strategy, Prosocial Behavior, Protective Motivation Model, Rebound Effect, Reference Group Theory, Signaling Theory, Social Comparison Theory, Social Identity Theory, Social Influence, Spillover Theory, and Value in Behavior Framework.

Inter-Personal Approach: This approach, on the other hand, focuses on external factors and forces that are outside of the individual. It considers elements such as social influences, economic factors, and environmental factors. For instance, it might examine how social pressure influences a person's behavior, or how external economic stimuli affects a person's decisions. This approach acknowledges that individuals do not exist in a vacuum but are influenced by the world around them. Example: They include Business Model Innovation, Cause Involvement, Co-Evolutionary Framework, Co-Creation/ Co-Design, Customer Value Loyalty Framework, Descriptive Norms, Innovation Diffusion, Institutional Theory, Marketing Systems, Norm Activation, Nudge, Public Policy Framework, Social Marketing, Social Norm Theory, and Social Practice Theory.

Behavior change approaches

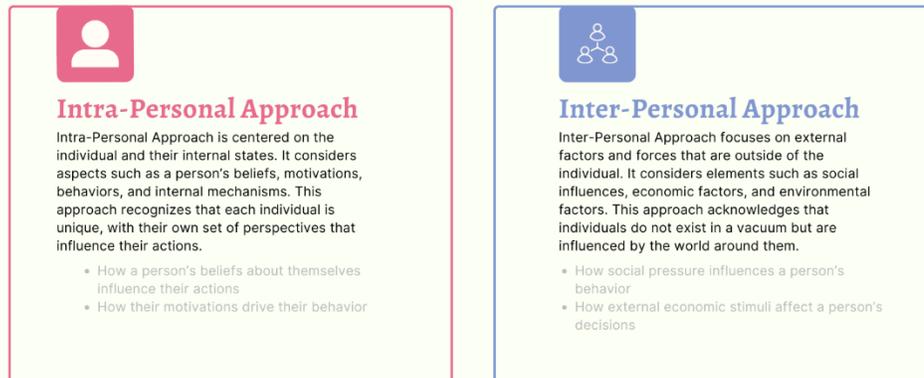


Figure 35 Summary of the approaches of behavior change interventions.

The question of how businesses can apply marketing concepts to promote sustainable or pro-environmental consumer behaviors is a complex one, as it involves understanding both the internal motivations of consumers and the external influences that shape their behaviors.

From an Intra-Personal Approach, businesses can leverage theories such as the Theory of Planned Behavior, Self-Determination Theory, and Goal Compatibility Theory to design marketing strategies that align with consumers' personal values and beliefs (Deci & Ryan, 1985). For instance, businesses could use Goal Compatibility Theory to highlight how sustainable behaviors align with consumers broader life goals. Similarly, Self-Determination Theory could be used to create marketing messages that emphasize autonomy and personal growth through sustainable behaviors.

Moreover, businesses can also utilize Behavioral Economics principles to nudge consumers towards more sustainable choices (Edwards, 1954, 1961, 1962; Simon, 1955). For example, they could use Opt-In and Opt-Out strategies to make sustainable options the default choice in product selections.

From an Inter-Personal Approach, businesses can use theories such as Social Norm Theory, Social Influence, and Descriptive Norms to harness the power of social influence in promoting sustainable behaviors. Businesses could use these theories to create marketing campaigns that showcase sustainable behaviors as the norm within a consumers social group, thereby encouraging them to adopt similar behaviors.

Furthermore, Public Policy Framework and Institutional Theory suggest that businesses can advocate for policies that support sustainable consumption and work with institutions to create an environment that facilitates sustainable behaviors.

It is worth noting that this categorization is just one way to organize these theories, and the boundaries between categories can be fluid. Many theories could fit into multiple categories, depending on how they are interpreted and applied. It is also worth noting that this categorization reflects the complexity and multifaceted nature of consumer behavior, particularly in the context of pro-environmental behavior.

2.3.1.1.2 DISCORDANCES

2.3.1.1.2.1 APPEALS

There is discordance on whether emotional appeals (such as gratitude or fear) or rational appeals (such as information or benefits) are more effective in motivating

consumers to adopt sustainable behaviors (Henson et al., 2010). Some studies suggest that emotional appeals can trigger strong emotional responses and motivate consumers to act, while others suggest that rational appeals can provide consumers with useful information and logical reasons to change their behavior. For example, Septianto et al. (2020) found that gratitude appeals increased consumer intentions and participation in food waste reduction, while Nicolau et al. (2022) found that environmental knowledge and cause involvement influenced consumers' willingness to bring reusable coffee cups.

2.3.1.1.2.1.1 SOCIAL NORMS APPEAL

Balderjahn et al. (2023) found that social norm appeals reduced shopping spending and chocolate consumption but had no effect on climate donation. However, White et al. (2013) found that social norm appeals increased recycling behavior and intentions to purchase CFL bulbs and conserve water. These results suggest that social norm appeals may have different effects depending on the type of behavior and the level of self-activation. What factors might contribute to the varying effectiveness of social norm appeals across different behaviors and levels of self-activation? Could the context or the specific behavior being targeted play a role in determining the success of these appeals?

2.3.1.1.2.1.2 EMOTIONAL APPEALS

Balderjahn et al. (2023) found that emotional appeals had no effect on any of the response variables, such as shopping spending, climate donation, and chocolate consumption post-participation. However, Septianto et al. (2020) found that gratitude

appeals increased consumers' awareness and participation in food waste reduction activities. These results indicate that emotional appeals may vary in their effectiveness depending on the type and intensity of emotion and the framing of the message. Given these findings, one might wonder: How can we determine the optimal type and intensity of emotional appeal, as well as the most effective message framing, to maximize the impact of these appeals on various consumer behaviors? Could there be other factors at play that influence the effectiveness of emotional appeals in different contexts?

2.3.1.1.2.2 IDENTITY THREAT EFFECTS

Trudel et al. (2016) found that linking a product to a consumer's identity by signing their name on it increased recycling behavior, but only if the name was spelled correctly. However, White et al. (2014) found that publicizing the positive actions of dissociative out-groups increased composting behavior, even though it could be seen as a threat to the in-group's identity. These results imply that identity threat may have different consequences depending on the strength of identity connection and the type of product. How might the strength of identity connection and the type of product interact to determine the impact of identity threat on consumer behavior? Could there be other factors at play that influence these outcomes?

2.3.1.1.2.3 LONGEVITY OF EFFECTS

The longevity of the effects of behavioral change interventions on consumers in different domains of is also a topic of considerable debate. This discussion has been particularly prominent in the works of Elf (2021) and Young (2018), who have presented

contrasting findings. Elf (2021) conducted a study focusing on a co-creation intervention aimed at reducing household energy use. The results of this study were quite promising, demonstrating not only lasting effects but also spillovers to other sustainable behaviors. These spillovers were observed in other areas of pro-environmental behaviors, such as water conservation and waste management. On the other hand, Young (2018) investigated a communication intervention designed to reduce food waste. Unlike Elf's study, Young found that the effects of the intervention were short-lived. Moreover, the study observed rebound effects, indicating that the initial improvements in behavior diminished over time. These contrasting results raise an intriguing question: What factors might account for the differences in the longevity of the effects observed in these two studies?

2.3.1.1.2.4 MONETARY INCENTIVES

There is a controversy on whether monetary rewards (such as discounts or cashbacks) or non-monetary rewards (such as recognition or donation) are more effective in incentivizing consumers to engage in sustainable behaviors. Some studies suggest that monetary rewards can provide a direct and tangible incentive for consumers to change their behavior, while others suggest that non-monetary rewards can appeal to consumers' intrinsic or extrinsic motivations and create a sense of satisfaction or achievement. For example, Nicolau et al. (2022) found that consumers required a minimum discount of 26.50 cents to bring reusable coffee cups, while Sandhu et al. (2021) argues that monetary

incentives are not influential enough to make consumers adopt reusable coffee cups. This again points to the area of attitude-behavior gap. Did the study designs affect consumers' responses in any way (e.g., social desirability bias)?

2.3.1.1.2.5 NUDGE

Filimonau et al. (2017) found that nudging consumers by providing information on the nutritional values, provenance, and carbon intensity of food items on the menu were effective in enabling more informed and beneficial food choices. However, Morgan et al. (2018) found that businesses nudging consumers by providing information, incentives, feedback, prompts, and convenience had limited effects on reducing consumption emissions from households, as they did not result in significant changes in consumer practices. These results indicate that nudging consumers may have different effects depending on the type of information and the type of behavior.

These controversies reflect the complexity and diversity of consumer behavior and the challenges of designing effective and ethical marketing interventions for sustainability. They also highlight the need for more research and experimentation to understand the conditions and mechanisms that can enhance the effectiveness of these interventions.

2.3.1.1.2.6 REFERENCE GROUP

White et al. (2014) found that consumers were more likely to compost a product sample if it was from a brand that they liked or identified with, rather than a brand that they disliked or did not identify with. However, Nicolau et al. (2022) found that

consumers were willing to bring a reusable coffee cup regardless of the brand of the coffee shop if they received a discount. These results indicate that reference group theory may have different applications depending on the type of product and the type of incentive.

2.3.1.1.2.7 REBOUND VS SPILLOVER

The rebound and spillover effects are two theories that explain how consumers' pro-environmental behaviors in one domain may affect their behaviors in other domains. Rebound effect, or moral licensing effect (Balderjahn et al., 2023; Boenke et al. 2022; Ratay and Mohnen 2022), suggests that consumers who engage in pro-environmental behaviors in one domain may compensate by increasing their consumption or resource use in other domains, thus offsetting, or diminishing the environmental benefits of their initial behavior. For example, a consumer who buys energy-efficient appliances may use them more frequently or for longer periods, resulting in higher energy consumption than before. On the other hand, the spillover effect suggests that consumers who engage in pro-environmental behaviors in one domain may be more likely to adopt similar behaviors in other domains, thus amplifying or extending the environmental benefits of their initial behavior, or even acquire the warm glow giving effect, which gives them happiness and satisfaction (Balderjahn and Hoffmann 2023). For example, a consumer who recycles at home may be more likely to buy organic food or use public transportation, resulting in lower environmental impact than before. How do we know

which effects will be present vis-vis marketing interventions for consumer behavior change and how influential are they?

2.3.1.1.3 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This article only includes peer-reviewed academic articles being published in high-quality journals that are included in key rankings. Therefore, books and grey literature are not studied and thus constitute a limit of this SLR. Future research could examine the grey literature of this topic to further evaluate any other insight about influencing consumers' behavior using marketing activities.

Secondly, since the data have been extracted from major academic databases, there have been instances where the data extracted were erroneous and/or unidentifiable. This could have led to potentially relevant items not being included or unidentified technical errors. However, the authors try their best to identify relevant papers that meet our criteria. Additionally, such papers could provide for a future systematic literature review, which not only takes in account these papers, but also additional future research.

One of the limitations of the existing literature concerning this research question is the lack of longitudinal studies that can capture the dynamics and evolution of consumer behavior and attitude over time. Many of the studies in the document are based on small-scale experiments or surveys, which may not fully capture the complexity and dynamics of consumer behavior in real-world settings. Moreover, most studies focus on short-term effects and individual behaviors, while the long-term effects and systemic

impacts of the interventions are often overlooked. Therefore, future research should adopt longitudinal designs that can track and measure the changes and outcomes of sustainability marketing over a longer period and across different contexts and situations. Future research should also employ more robust and diverse methods, such as field experiments and system dynamics modeling, to gain deeper and broader insights into the processes and outcomes of sustainability marketing interventions.

Another limitation of the existing literature is the reliance on self-reported data, such as surveys, and a lack of real behavioral data, which may not accurately represent consumers' actual behavior. Self-reported data can be subject to various biases, such as social desirability, memory, or consistency, that can distort or exaggerate consumers' responses (Fisher & Katz, 2000). Moreover, self-reported data can only capture consumers' behavioral intention, which may not translate into actual behavior due to the intention-behavior gap. Therefore, future research should use more objective and direct methods to collect and analyze consumers' actual behavior, such as observation, experimentation, or digital tracking.

A third limitation of the existing literature is the lack of qualitative understanding of the underlying factors and mechanisms that influence consumers' sustainable consumption and behavior. Most of the studies are quantitative and statistical, which may not capture the richness and complexity of consumers' psychology, including their experiences, perceptions, and motivations. Therefore, future research should use more

qualitative methods, such as case studies, ethnography, or narrative analysis, to explore and explain the phenomena of sustainability marketing in depth and detail. For example, future research could use anonymized data to understand the intention-behavior gap, to investigate the reasons behind consumers' choices and actions, and to solve the above-mentioned discordances.

A fourth limitation of the existing literature is the lack of attention to the value creation and delivery for both the environment and the individual consumers. Most of the studies focus on the environmental benefits and impacts of sustainability marketing but neglect the individual benefits and values that consumers seek and expect from sustainable products and services. Therefore, future research should explore and identify the ways that can generate value for both the environment and the individual consumers, such as functional, emotional, social, or symbolic values, and how these values can influence consumers' willingness and satisfaction. For example, future research could examine how sustainability marketing can enhance consumers' self-expression, self-esteem, or well-being.

A fifth limitation of the existing literature is the potential influence of social desirability bias on consumers' response to sustainability marketing. Social desirability bias (Fisher & Katz, 2000) refers to the tendency of consumers to present themselves or their social groups in a favorable or consistent way, especially when they are aware of being observed or evaluated by others. This bias can affect consumers' response to

sustainability marketing, as they may adjust their behavior or attitude to conform to the expected or desired norms or images. The participants in the included articles' studies who had direct contact with researchers may have exacerbated this bias, widening the gap between intention and behavior. Therefore, future research should use study designs that minimize self/social representation bias, such as using anonymous or confidential data collection, using implicit or indirect measures, or using natural or realistic settings.

A sixth limitation of the existing literature is the lack of investigation of the issue of sustainability liability. Consumers' quality perceptions of products are influenced by numerous factors, including the sustainability claims made by marketers. However, the effect of sustainability on quality may not be straightforward, as some studies have suggested that consumers may have a bias against sustainable products, assuming that they are less effective or of lower quality than their conventional counterparts. This phenomenon, known as sustainability liability (Luchs et al., 2010), can pose a challenge not only for products labeled as green, but also the perception of consumers towards sustainability in general. Is sustainability liability a real phenomenon or just consumer bias? What do consumers really have in mind when the word "sustainability" is mentioned?

Finally, tailoring communication messages, as seen from this review, is important for sustainability marketing, yet is lacking in the current research. With the advent of AI and other technologies, mass personalization may not be far. Future research could

explore and evaluate the use of AI and other technologies to create and deliver messages that promote sustainable consumption and behavior to consumers based on their characteristics, preferences, and behavior. For example, future research could use natural language processing and machine learning to generate and test diverse types of messages that appeal to different consumers' values, emotions, and moral foundations related to sustainability. Future research could also use big data and analytics to segment and target consumers based on their behavioral patterns, consumption habits, and environmental impact to facilitate and optimize pro-environmental behaviors.

FUTURE RESEARCH



Figure 36 Suggested future research directions for behavior change marketing interventions.

2.3.1.2 THEORETICAL CONTRIBUTIONS

This systematic literature review makes three interrelated theoretical contributions to scholarship on pro-environmental behavior change. First, it consolidates and reconfigures a fragmented theoretical landscape into a coherent, multi-level portfolio of mechanisms and outcomes. Second, it advances a staged process view of sustained behavior change by linking intervention mechanisms to the Bauman's Hierarchy of Effects (Bauman et al., 2002), thereby theorizing when and how particular logics are likely to produce movement from intention to trial and, ultimately, to durable success. Third, it clarifies the field's underlying knowledge-production patterns—using the Colquitt and Zapata-Phelan (2007) taxonomy—to show where theory building and testing have concentrated and where new integrative theorizing is warranted. Together, these contributions move the literature beyond isolated demonstrations of effect toward a more cumulative account of how marketing interventions generate and maintain sustainable consumption practices.

The first contribution is an integrative mapping of the main theoretical mechanisms used to design behavior-change interventions for sustainability and the relationships among them. The review shows that while a few perspectives recur—most notably nudge and social identity—authors draw on a wide array of theories spanning psychology and behavioral science, marketing and social marketing, sociology and public policy, and design thinking (e.g., co-creation/co-design, elaboration likelihood,

fluency, innovation diffusion, operant conditioning, perceived value, self-determination, social influence, social marketing, and theory of planned behavior) (Gallopel-Morvan & Crié, 2022; Tajfel et al., 1979; Thaler & Sunstein, 2008). This pluralism is visible in the data: nudge and social identity are the most frequently mobilized, but many other mechanisms appear at least once or in a second tier of use, indicating a rich, multidisciplinary approach to changing consumer behavior toward sustainability. The SLR documents these distributions and their disciplinary anchors, thereby providing a theoretically grounded map that future studies can use to select, sequence, and combine mechanisms rather than defaulting to single-theory interventions.

Further consolidation emerges when the mechanism map is related to success cases. The analysis identifies operant conditioning as disproportionately represented among interventions that reached the “Success” stage in the hierarchy of effects—i.e., where adoption is not only achieved but maintained beyond the intervention period—suggesting that contingent reinforcement structures embedded in environments or gamified services may be especially potent for sustaining change (Skinner, 1969). By contrast, many other mechanisms dominate earlier stages such as intention or trial. This cross-tabulation of mechanisms by stage contributes theoretically by specifying which classes of theory are most plausibly associated with initiation versus maintenance of behavior change, thereby connecting choice-architecture, identity-based, and reinforcement-based accounts.

The second contribution builds a processual account that links intervention logics to the Bauman hierarchy of effects, which the SLR uses to classify outcomes from exposure and attention through understanding, acceptance, intention, trial, and success (Bauman et al., 2002). By organizing empirical findings along these stages, the review moves beyond “whether an intervention works” to theorize “how and when it works” across the pathway to durable adoption. Several patterns emerge. First, numerous interventions succeed in producing intention and trial, yet fewer reach demonstrated, longitudinally verified success. This pattern is consistent with a “funneling” dynamic predicted by the hierarchy and underscores the importance of designing for maintenance, not only initiation. Second, interventions grounded in informational or persuasive logics (e.g., elaboration likelihood, fluency) are more frequently associated with actions through understanding and intention, whereas identity-relevant and social-normative logics (e.g., social identity, social marketing) appear to facilitate acceptance and translation into trial by aligning behavior with valued identities and perceived norms. Third, operant conditioning mechanisms—often implemented in gamified or app-based environments—correspond to the success stage, where reinforcement schedules and feedback loops consolidate habits (Skinner, 1969). The contribution here is a theorized alignment of mechanism classes with transition points in the hierarchy, yielding a sequenced model in which choice architecture and persuasive communication generate

initial consideration, identity and norms convert to trial, and reinforcement architecture consolidate and sustain behavior.

This staged view also incorporates diffusion-of-innovation dynamics to explain population-level spread and normalization of sustainable practices. The SLR shows that perceived relative advantages, compatibility, complexity, trialability, and observability shape adoption rates in real-world sustainability contexts, implying that interventions which redesign the practice to be trialable and visible can accelerate transitions from individual trial to social diffusion (Rogers, 2003). Theoretically, this extends the stage model beyond the individual to the meso-level of social systems, linking individual maintenance to social signal visibility and network contagion.

A third contribution concerns the meta-theoretical status of the literature. Using the Colquitt and Zapata-Phelan (2007) taxonomy, the review classifies most empirical studies as “Qualifiers” or “Expanders” —that is, studies with moderate to high intentions for both theory building and testing that introduce moderators/mediators or extend existing theories—while “Reporters” and “Builders” are sparse. This pattern indicates a field oriented towards elaborating and extending known frameworks rather than replicating or introducing entirely new constructs, with few pure tests of the validity boundaries of extant theories. Theoretically, this diagnosis helps explain the proliferation of context-specific findings and the relative paucity of integrative, longitudinal tests of maintenance mechanisms. It also motivates a cumulative research agenda that prioritizes

(a) stronger theory testing of maintenance-relevant mechanisms across contexts (e.g., reinforcement architectures versus identity-based appeals), (b) theory building that articulates cross-level mechanisms linking individual, social, and infrastructural determinants, and (c) replication and adversarial collaboration to resolve discrepancies around the durability of effects.

This SLR also maps the literature surrounding the research question, evaluating, and mapping the periphery to the core of this topic. This can provide future research with a clear overview of the current state of knowledge, the main gaps and challenges, and the potential directions for further investigation. Despite not being included in the final sample to be included, the articles that have been filtered immediately following the searches are very high-quality journals situated at the intersection between marketing and sustainability themes. They are already grouped into sub-themes, which can build a foundation for further research. The trends and key topics in the cluster analysis could also help identify niche themes yet to be investigated.

On this basis, the review advances three integrative propositions for future theory. First, interventions are most effective when mechanisms are sequenced to match stage-specific bottlenecks: choice-architecture and persuasive mechanisms to generate intention; identity-normative mechanisms to convert intention to trial; and reinforcement-habit mechanisms to secure maintenance. Second, cross-level alignment enhances durability: interventions that simultaneously make the behavior easy and

rewarding (operant), normatively appropriate (social identity/norms), and visibly advantageous (diffusion attributes) are more likely to produce success. Third, co-creation and co-design should be theorized not only as participatory methods but as mechanisms that embed identity-congruent meanings and social proof into the practice itself, thereby strengthening the pathway from acceptance to trial and sustaining engagement through user-shaped reinforcement structures.

Finally, the review contributes conceptual clarity by distinguishing initiation versus maintenance mechanisms and by situating social marketing and transformative marketing within a broader ecosystem of theories. It delineates the roles of emotional, identity, normative, and reinforcement processes in the transition from attitude change to habit formation, and it positions social marketing and transformative marketing as macro-level strategies that orchestrate these mechanisms to shift cultural norms and infrastructures rather than simply influence individual choices (Kumar, 2018; Lowe et al., 2015; Rundle-Thiele et al., 2021). This clarifies how upstream strategies (e.g., authenticity and transparency to counter skepticism; norm-shaping campaigns; infrastructure that rewards the target practice) complement downstream choice-architecture and persuasive tactics in a full-stack theory of sustainable behavior change.

2.3.2 MANAGERIAL CONTRIBUTIONS AND IMPLICATIONS

This SLR offers valuable insights and guidance for marketing practitioners who seek to design and implement effective sustainability marketing interventions in their

businesses or organizations. It provides a framework for selecting and tailoring the most suitable type of intervention for different sustainability goals, consumer segments, and consumption domains. It also suggests best practices and recommendations for enhancing the intervention effectiveness, such as using multiple channels and techniques, leveraging social influence and feedback, and aligning the intervention with consumer values and motivations. Moreover, it highlights the importance of continuous monitoring and evaluation of the intervention outcomes, using both objective and subjective measures, and making necessary adjustments or improvements.

Back to our research question "What are the marketing actions, backed by empirical findings, can businesses do, in applying marketing concepts, to change consumers' behaviors to be sustainable (or pro-environmental)?" Following is a list of marketing actions that businesses can consider taking to change their consumers' behavior, depending on the target audiences, the resources, timing, strategies, level of effects desired, and contexts of planned interventions. These items are taken from individual studies selected for the analysis that have been empirically proven to change consumers' understanding, intentions, and behaviors. They fall into the following categories:

Marketing mix elements: The basic elements of marketing that create and deliver value to customers (e.g., Product, Price, Place, Promotion, Positioning, Menu design,

Product and service innovation, Sustainable luxury, Identity-based Product Lines, Personalized Packaging, Friendly service)

Information and education: The methods of providing information and education to consumers about the benefits and impacts of sustainable consumption and behavior (e.g., Information and education, Information provision, Informational value, Educating and informing consumers, Environmental messaging, Eco-labeling, providing information about the positive actions of dissociative out-groups in public settings, Increase the fluency or ease of comprehension of the pro-environmental messages, Leverage the spillover effects of pro-environmental messages on related behaviors, use persuasive appeals that match the moral foundations of the target consumers).

Incentives and rewards: The methods of offering incentives and rewards to consumers for engaging in sustainable consumption and behavior (e.g., financial incentives, Monetary incentives, offering incentives and rewards, Loyalty Programs, Feedback, Feedback and rewards, Reward type, Short-term and long-term rewards, Reward-based game design elements, Using reward-based game mechanics).

Nudging and choice architecture: The methods of influencing consumers' choices and behavior by subtly altering the choice environment or framing the options (e.g., Nudging, Nudging, Nudging, Nudging, Choice Architecture, Opt-out strategy, Subordinate-options strategy, Digital nudges, Menu design, Framing, Framing, Message framing, Normative appeals, Emotional appeals, Emotional appeals, Appeal type, Social

norms, Social norms, Creating social norms and expectations, Modelling, Providing consumers with functional and emotional value).

Gamification and serious games: The methods of applying game design elements and principles to non-game contexts or creating games for educational or social purposes (e.g., Gamification, Gamification, Gamified app design, designing serious games, Challenge, Flow, Goal setting, Autonomy, Character or avatar, Creativity priming, Inspiration, End-use ideation).

Co-creation and partnership: The methods of involving consumers in the creation or delivery of value or establishing collaborative relationships with consumers or other stakeholders (e.g., Co-creation, Partnership, Establishing partnerships with consumers, Collaborations with Influencers, Community-based Marketing, Customer engagement, Social marketing, and engagement).

Social marketing: The methods of applying marketing techniques to influence social change or promote social causes (e.g., Social marketing, Social Marketing, Social marketing, Social Marketing, Social marketing techniques, Addressing sociocultural and institutional influences, CSR, Applying the behavioral learning hierarchy of “do-learn-feel”, Level of self, Personal relevance and involvement, Value-in-behavior, Designing SMI services with innovation diffusion characteristics, Increasing the visibility and communication of SMI services, Promoting alternative sources, Waste disposal infrastructure, Word-of-mouth).

Anti-consumption and signaling: The methods of discouraging or reducing consumption or signaling one’s identity or values through consumption or non-consumption (e.g., Anti-consumption, Institutional anti-consumption messages, Conspicuous anti-consumption signals, Costly signaling theory, Consumer messages, Context of return, Return mechanism).

Following is a matrix that summarizes the above-mentioned categories into a matrix of the level (intrapersonal or interpersonal) and longevity (short or long term) of the interventions.



Figure 37 Matrix of marketing interventions for consumer behavior change.

A comprehensive list of marketing interventions that businesses can conduct to promote sustainable behavior among consumers, drawn from the included literature, can be found in Appendix 9.2.

3 CHAPTER 3: BUSINESSES' PERSPECTIVE – CASE STUDY ANALYSIS OF SUSTAINABLE MARKETING CAMPAIGNS (PROJECT 2)

This project aims to bridge the gap between theoretical insights from the previous Systematic Literature Review (SLR) and real-world marketing practices by analyzing successful sustainable marketing campaigns. While the SLR identified the challenges in achieving long-term consumer behavior change, it primarily focused on theoretical literature. Businesses are increasingly developing innovative and practical marketing strategies that influence consumer behaviors toward sustainability, sometimes yet to be included in the academic literature.

By conducting a case study analysis, Chapter 3 will offer practical insights into how businesses from various industries apply these strategies in practice. Understanding how businesses' successful marketing campaigns design their messaging for sustainability is essential to identify the best practices for promoting sustainable consumption. The focus on real-world campaigns also enables the project to uncover effective techniques that can inform both academia and practitioners on how to tailor sustainable marketing messages for broader consumer engagement and long-term behavior changes.

This project seeks to answer the following research questions:

- RQ1: What types of marketing interventions that have been shown in academic literature to foster sustainable consumer behavior manifest in real-world award-winning campaigns?

- RQ2: Which emotional strategies are most frequently deployed in award-winning sustainable marketing campaigns, and how do these emotions align with the theoretical frameworks identified in the SLR?
- RQ3: How do linguistic patterns — including frequent words, n-grams, and key topics — reflect theoretical constructs of consumer behavior change?
- RQ4: In what ways do businesses assign responsibility for sustainability within their campaign discourse, and how does this resonate with the agent–target dynamics found in the SLR?
- RQ5: How have the rhetorical and emotional expressions of sustainable campaigns evolved over time, and what continuities or divergences can be traced between scholarly insights and campaign practices?

3.1 METHODOLOGY

This project adopts a case study methodology to explore the defining features of award-winning sustainable marketing campaigns. Case studies are particularly well suited to the examination of contemporary phenomena in real-world contexts, as they enable the integration of detailed, context-rich data with systematic analysis (Yin, 2018). In this instance, the focus is placed on campaign discourse, with the aim of understanding how businesses employ language to influence consumer behavior toward sustainability.

The methodological foundation of the project rests on two complementary computational techniques: web scraping and natural language processing (NLP). Web

scraping provides a means of collecting large volumes of text in a consistent and replicable manner, allowing access to the video transcripts of award-winning campaigns at scale (Mitchell, 2018). This automated process not only ensures efficiency but also reduces the potential for human bias in data collection, thereby strengthening the reliability of the dataset. The exclusive use of video transcripts reflects a deliberate choice: campaign videos are a medium through which businesses directly address consumers, combining narrative, visual, and emotional elements to persuade audiences. By focusing on this medium, the study captures the language that is most intentionally crafted to shape perceptions and encourage behavioral change.

Once collected, the transcripts are subjected to analysis through natural language processing techniques. NLP is a branch of computational linguistics and artificial intelligence that enables the systematic study of large-scale textual data (Cambria & White, 2014). It provides tools for uncovering patterns that are not readily identifiable through manual reading, such as recurrent word combinations, sentiment orientations, emotional tones, and the distribution of linguistic structures (Miner, 2012). Through its capacity to quantify textual features while maintaining sensitivity to linguistic nuance, NLP is particularly suited to the study of persuasive communication. In the context of sustainability marketing campaigns, these techniques make it possible to identify recurring emotions, narrative strategies, and rhetorical devices that underpin effective messaging.

The integration of web scraping and NLP thus allows the project to bridge the gap between qualitative depth and quantitative scale. On one hand, the data are rooted in the real-world context of award-winning campaigns, ensuring validity. On the other hand, computational methods enable the systematic extraction of patterns across a large corpus, generating insights that move beyond individual case impressions to more generalizable tendencies. This dual approach positions the study at the intersection of computational social science, marketing research, and sustainability communication.

Finally, the interpretation of findings is guided by perceived value theory, which highlights the importance of functional, emotional, social, and symbolic value in shaping consumer responses (Boksberger & Melsen, 2011; Hur et al., 2013; Keser et al., 2020; Sánchez-Fernández & Iniesta-Bonillo, 2007). While the immediate analytical focus lies on linguistic and discursive patterns, perceived value theory provides a theoretical framework through which these patterns can be situated within broader consumer behavior research. By connecting campaign discourse to established dimensions of value, the study ensures that its findings contribute not only to the description of communication strategies but also to the understanding of how such strategies create relevance and resonance for consumers in the context of sustainability, which is often overlooked in sustainability research (Luchs et al., 2010; Probst, 2023).

3.1.1 WEB SCRAPING

The ongoing digitization of information and the growth of open-access online resources have transformed the ways in which researchers can collect and analyze data at scale. One methodological development of particular relevance is web scraping, which enables the automated and systematic extraction of textual material from publicly accessible digital sources (Mitchell, 2018). Within marketing and sustainability research, this approach is especially valuable given that evidence of impactful campaigns is often dispersed across award platforms and industry-specific repositories. In this project, web scraping serves as the principal means of identifying and assembling a corpus of video transcripts from businesses' award-winning marketing campaigns for behavior change, thereby capturing the language businesses use when directly addressing consumers. Compared with manual collection or the purchase of proprietary databases, web scraping offers a replicable and scalable means of constructing a dataset that reflects communication practices already validated by industry recognition.

The data collection process unfolded in two stages. In the first stage, award-winning campaigns were identified and extracted from a combination of award websites and award-related PDF files made publicly available by organizers. These files and databases provided structured information about campaigns, including titles, brands, and years of recognition. Where award databases were openly accessible, automated scraping techniques were applied directly. However, when databases were restricted or

located behind paywalls, alternative strategies were adopted, such as consulting third-party websites that reproduced official awardee lists.

The second stage involved the semi-automatic retrieval and transcription of campaign videos. After compiling a main list of award-winning marketing campaigns for sustainable sustainability, each was manually traced to its corresponding official or publicly accessible video. These videos were then processed through an automated transcription pipeline built using *yt-dlp* for video downloading, *FFmpeg* for audio extraction, and OpenAI's *Whisper* for speech-to-text transcription. The pipeline enabled efficient and consistent transcript generation across campaigns, while subsequent post-processing steps included spelling correction, text cleaning, and, where necessary, translation into English. These procedures ensured the creation of a coherent and standardized textual dataset suitable for large-scale natural language processing.

To assemble a comprehensive and analyzable corpus of award-winning sustainability campaigns, this project employed a multi-layered data acquisition strategy that combined both manual curation and automated scraping techniques. Because award-related materials are dispersed across a wide range of formats and repositories—ranging from structured websites and PDF catalogues to images and video content—no single method was sufficient. Accordingly, the project developed and deployed a series of customized scrapers targeting distinct data modalities: structured website data, PDF

documents, images, and video transcripts. The codes for these scrapers are included in the appendices.

Table 5 Awards included for scraping.

| Award Name | Website/Link |
|--|---|
| Campaign Ad Net Zero Awards | https://www.campaignadnetzeroawards.com/winners-2024 |
| Cannes Lions – SDG Lions (Sustainable Development) | https://www.canneslions.com/awards/lions/sustainable-development-goals https://www.lovethework.com/ https://www.lovetheworkmore.com/ |
| D&AD Impact Awards | https://www.dandad.org/en/d-ad-impact/ |
| Drum Marketing Awards | https://www.thedrum.com/awards |
| Effie Awards – Positive Change (Environmental) | https://www.effie.org/cases/?cases-category=positive-change-environmental-brands |
| Global Good Awards (Behavior Change) | https://globalgoodawards.co.uk/2024-global-good-award-winners/ |
| One Show – Green Pencil | https://oneshow.org/categories/green-pencil/ |
| World Sustainability Awards | https://worldsustainabilityleaders.com/events/awards/ |

3.1.1.1 AWARDS SCRAPED

Across the global marketing and sustainability landscape, a wide array of award programs has emerged to recognize campaigns that advance sustainable behavior change. These initiatives are often designed not only to celebrate creativity but also to highlight the role of marketing in driving measurable environmental and social outcomes. Such awards provide visibility to innovative practices, offer benchmarks of excellence, and signal to both industry actors and the public which campaigns are considered exemplary in addressing pressing sustainability challenges.

Despite the growing number of sustainability-related awards, only a limited set could be meaningfully incorporated into this project. Several challenges restrict their use. First, many award databases remain behind expensive subscription models or

membership-only access, which renders them inaccessible for independent academic research (e.g., the Anvil Awards). Second, some award platforms do not provide publicly available records of past winners, or their winners are not businesses employing marketing interventions but rather NGOs, government bodies, or individual advocates. Third, the scope of this study requires a focus on business-led campaigns that explicitly employ marketing strategies to influence consumer behavior toward sustainability. Awards without a clear connection to such businesses' marketing interventions are therefore excluded.

Consequently, this project relies on a carefully curated subset of awards that meet three essential criteria: (i) they provide publicly accessible and verifiable information—either directly from the official award organizers or, where necessary, through reliable third-party platforms that reproduce the list of winning campaigns; (ii) they explicitly recognize marketing campaigns with a sustainability focus; and (iii) they highlight initiatives validated as successful by industry experts through prestigious distinctions. These awards function not only as benchmarks within the marketing industry but also as academically valuable sources since they offer an externally validated basis for identifying impactful marketing campaigns for change in consumer behavior.

The following awards are thus included in the dataset:

3.1.1.1.1 CAMPAIGN AD NET ZERO

The Campaign Ad Net Zero Awards represent a targeted initiative within the advertising industry to highlight sustainable practices. Data for 2022 winners were collected through web scraping (cf. Appendix 9.3.1.5). For 2023 and 2024, results were made available exclusively in PDF format, necessitating the development of a Python-based PDF scraper for this study (cf. Appendix 9.3.2).

3.1.1.1.2 CANNES LIONS – SUSTAINABLE DEVELOPMENT GOALS

The Cannes Lions Sustainable Development Goals (SDG) Lions (Cannes Lions, 2025) celebrate creative marketing solutions that address the United Nations' Sustainable Development Goals (SDGs). This category, introduced in 2018, has quickly become one of the most prominent recognitions for purpose-driven advertising and communications. It showcases campaigns that drive positive societal change while fostering sustainable consumer behaviors at a global level.

The SDG Lions are structured around five overarching themes: People, Planet, Prosperity, Peace, and Partnership. Given the environmental orientation of this dissertation, the Planet category is prioritized. Within this category, the following sub-categories are particularly relevant:

- B01 – Clean Water and Sanitation
- B02 – Affordable and Clean Energy
- B03 – Sustainable Cities and Communities

- B04 – Responsible Consumption and Production
- B05 – Climate Action
- B06 – Life Below Water
- B07 – Life on Land

For campaigns to qualify for inclusion in this research, they must demonstrate clear environmental implications, be executed by for-profit businesses through marketing interventions, and have received recognition from industry experts via Grand Prix, Gold, Silver, or Bronze awards.

It is important to note, however, that the official Cannes Lions website (lovethework.com) only provides the names of winning campaigns, without making the associated campaign materials publicly available without payment. To address this limitation, the dataset construction drew on an alternative platform, lovetheworkmore.com, which reproduces the list of winners and, crucially, hosts the creative materials linked to those campaigns. Accordingly, the official Cannes Lions site was used for scraping the names of award-winning campaigns, while lovetheworkmore.com served as a complementary source for accessing campaign content.

3.1.1.1.3 D&AD AWARDS

The D&AD (Design and Art Direction) Awards are widely recognized as a global benchmark for excellence in creative advertising and design. Renowned for their rigor

and integrity, they celebrate commercially released campaigns that deliver tangible, measurable impact. Of particular importance to this study are the Impact, Future Impact, and Sustained Impact categories, which acknowledge initiatives leading to environmental, social, policy, or behavioral improvements.

These categories ensure that winning work is not only creative but also effective in fostering long-term change. Eligible initiatives include large-scale campaigns, transformative business initiatives, early-stage concepts with demonstrable potential, and sustained efforts that have achieved durable impact.

3.1.1.1.4 DRUM MARKETING AWARDS

The Drum Marketing Awards, established in 2021, are recent but already span three global regions: Americas, APAC (Asia Pacific), and EMEA (Europe, Middle East, and Africa).

- In the Americas, sustainability data are missing for 2022 and 2023, and 2021 featured no dedicated sustainability category. The first full dataset appears in 2024.
- In EMEA, the sustainability category also emerges in 2024.
- In APAC, no sustainability winners were found at the time of writing.

In 2024, six winners (Gold, Silver, Bronze for each region) were announced in both the Americas and EMEA divisions, of which five campaigns were led by for-profit businesses.

3.1.1.1.5 EFFIE AWARDS – POSITIVE CHANGE EFFIES

The Effie Awards for Positive Change – Environmental – Brands (Effie, 2025) represent one of the most rigorous recognitions of marketing effectiveness. They celebrate campaigns that both shift consumer behavior toward sustainability and deliver meaningful business results. In this category, sustainability is not peripheral but a core strategic objective.

- Evaluation focuses on demonstrated outcomes such as:
- Raising public awareness of environmental challenges
- Generating first-time trials of sustainable products or services
- Promoting eco-conscious alternatives in mainstream markets
- Altering patterns of product use in favor of sustainable practices

By insisting on both behavioral and business impact, Effie's provide particularly valuable data for this study, as they highlight campaigns where sustainability is tied directly to measurable performance.

Nevertheless, it is important to note a key limitation: the Effie case database is located behind a paywall. While the award framework and categories are publicly available, full access to detailed campaign case studies requires paid subscriptions. As a result, this study relies on the publicly accessible descriptions of award-winning campaigns and categories rather than the complete proprietary case library.

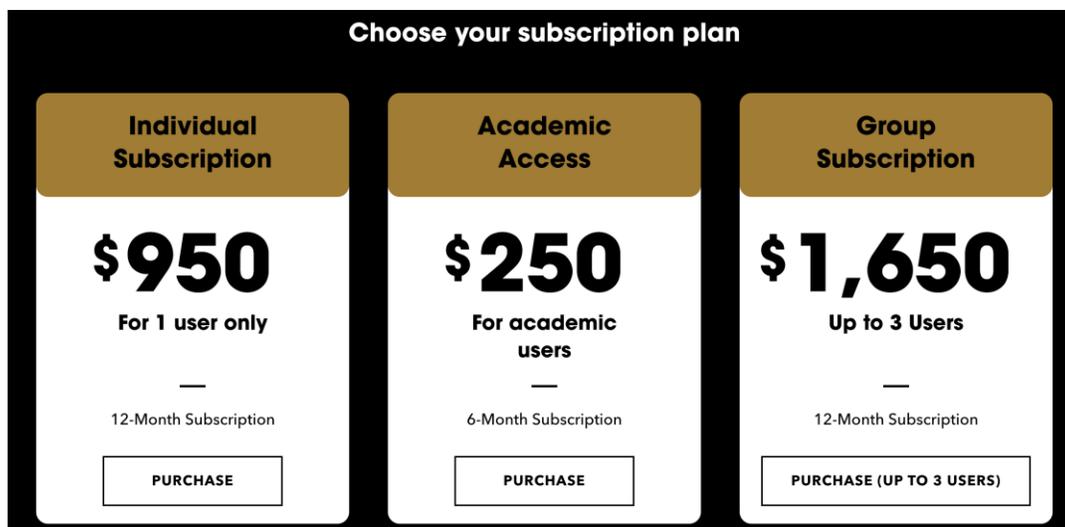


Figure 38 Subscription fees for the Effie database.

3.1.1.1.6 GLOBAL GOOD AWARDS

Founded in 2015, the Global Good Awards celebrate businesses, NGOs, charities, and social enterprises for their leadership in sustainability and ethics (Global Good Awards, 2025). The awards emphasize practical, scalable, and replicable initiatives with measurable societal and environmental benefits.

The Behavior Change Campaign of the Year category, introduced in 2022, is particularly relevant, as it explicitly recognizes environmental behavior change campaigns. This ensures that winning cases align with the core research objective of studying how businesses leverage marketing to influence sustainable consumer behavior.

3.1.1.1.7 ONE SHOW – GREEN PENCIL

The Green Pencil at The One Show is awarded to campaigns that demonstrate significant environmental impact. It was first introduced in 2010, then paused, before

being reintroduced in 2019 and awarded annually thereafter. Its objective is to highlight collaborations between advertising professionals and environmental organizations, rewarding projects that combine creative excellence with tangible ecological outcomes. This award is relevant for its explicit focus on environmental metrics, offering examples of campaigns where sustainability is not only a theme but a measurable result.

3.1.1.1.8 WORLD SUSTAINABILITY AWARDS

Among the recent additions to sustainability-focused recognition programs is the World Sustainability Awards (Procurement Leaders Limited, 2025), which honor exemplary corporate efforts in advancing sustainability across various domains. Notably, the Communications Campaign Award category specifically designed to recognize outstanding sustainable behavior—was introduced in 2024, making it a particularly relevant and contemporary benchmark for this research. While the awards themselves are new, with the earliest documented entries dating back to 2022, their structured focus on sustainability leadership and communications excellence offers valuable real-world case studies for examining how strategic messaging influences consumer behavior in the context of sustainability.

Since the Communication category only appeared in 2024, we do not scrape this website and manually picked up the winner for the winner of the Communications Campaign Award 2024 directly.

3.1.1.2 THE SCRAPING PROCESS

3.1.1.2.1 AWARDS SITES

The initial phase of data collection concentrated on extracting campaign-level information directly from award websites. To this end, the platform Webscraper.io was utilized as the primary technical tool for structured data extraction. This service enables researchers to define “sitemaps,” which function as structured blueprints of a webpage. These sitemaps guided the scraper in systematically retrieving information such as award categories, winning campaigns, organizational descriptions, and hyperlinks (cf. Appendix 9.3.1).

This method proved highly effective when award organizers maintained accessible and well-structured online repositories. However, challenges arose when databases were either restricted behind paywalls, restricting the ability to build comprehensive corpora. For instance:

- <https://datarade.ai/search/products?category%5B%5D=consumer-behavior-data&category%5B%5D=sustainability-data&category%5B%5D=un-sustainable-development-data&commit=Apply>
- <https://www.talkwalker.com/pricing>
- <https://nielseniq.com/global/en/insights/pricing-and-promotion/>
- <https://www.effie.org/caselibraryhome>
- <https://www.adforum.com/info/pricing/creative-library/individual>

In cases where alternative third-party repositories or secondary databases reproduced official awardee lists, these were consulted to supplement the dataset. When no such alternatives were available, the award in question had to be excluded from the collection process. This approach ensured that the datasets remained as comprehensive as possible within the limits of publicly accessible information.

3.1.1.2.2 PDF FILES

In numerous instances, award organizers released their records of winning campaigns exclusively in PDF format. While these documents provided valuable information, they lacked the structured markup necessary for conventional web scraping. To address this, a custom Python-based script was developed (cf. Appendix 9.3.2). This program utilized the *PyMuPDF* library to parse the text from PDF documents, identify structural markers, and systematically extract associated campaign details, including titles, brand names, and descriptive notes. The extracted data were then exported into tabular form, ensuring that campaigns presented in non-standardized archival formats could be incorporated into the dataset on equal terms with those derived from websites.

3.1.1.2.3 IMAGES

Although textual information formed the foundation of the dataset, image scraping was utilized as an auxiliary method to validate campaign identification and facilitate the accurate tracing of corresponding videos. On several occasions, the title of a campaign listed on award sites or in PDF catalogues did not readily match the titles under

which videos were available on public platforms. Ambiguities arose, for example, when campaign titles were generic, abbreviated, or inconsistently translated.

To resolve these uncertainties, a custom Python-based image scraper was employed (cf. Appendix 9.3.3). The scraper automated the retrieval of campaign-related images from award listings and stored them in a standardized directory structure using a campaign-year naming convention. These images served as an additional point of reference during the manual video search process: by visually comparing retrieved images with video thumbnails or campaign materials, it became possible to confirm the authenticity of the match. In this way, image scraping functioned not primarily as a dataset but as a triangulation tool that safeguarded against errors in campaign-to-video attribution.

3.1.1.2.4 VIDEOS TRANSCRIPTIONS

The central analytical material for this project consisted of video transcripts of award-winning campaigns. After identifying campaigns and locating their corresponding official or publicly available videos, a dedicated transcription pipeline was deployed (cf. Appendix 9.3.4). This pipeline integrated multiple open-source tools to ensure accuracy and reproducibility. First, *yt-dlp* was used to download campaign videos. Next, *FFmpeg* extracted the audio track from each file. Finally, the audio was transcribed using OpenAI's Whisper, a state-of-the-art neural speech recognition system.

The initial transcripts were subsequently subjected to a series of post-processing steps designed to enhance accuracy and consistency. This included spelling correction using *SymSpell*, automated language detection, and, where necessary, machine translation into English to standardize the corpus. In rare instances where Whisper did not generate adequate transcriptions, additional optical character recognition (OCR) techniques were employed to extract embedded text from video frames. When the OCR output proved unintelligible and the language could not be meaningfully interpreted, the corresponding campaign was necessarily omitted from the dataset. The overall pipeline thus yielded a corpus of clean, standardized transcripts exported in CSV format, ensuring comparability across campaigns and enabling subsequent natural language processing.

3.1.2 EXPLORATORY QUALITATIVE ANALYSIS

This exploratory qualitative analysis synthesized a corpus of brand-led video transcripts from marketing initiatives aimed at pro-environmental attitude and behavior change among consumers collected from the web scraping of awards. The dataset comprised data from the transcripts together with campaign-level metadata identifying the company and agency.

The coding strategy followed a hybrid, abductive design that combined directed content analysis with inductive thematic development (Braun & Clarke, 2006; Hsieh & Shannon, 2005). The directed component operationalized the four mechanism families highlighted in Chapter 2—nudges/choice architecture, social norms, monetary

incentives, and identity-relevant appeals—treating Chapter 2’s synthesis as an a priori codebook to enable direct triangulation. In parallel, inductive open coding identified recurrent practice patterns that repeatedly appeared across cases but were not fully captured by the priori set, including transformative marketing/market design, co-creation/co-design, circularity/resource recovery, technology enablement, and governance/credibility practices (e.g., open data, third-party verification). Code definitions were iteratively refined through constant comparison until theoretical saturation for this dataset was reached (Braun & Clarke, 2006; Jick, 1979).

Implementation used a rule-guided approach appropriate for short, rhetorically compressed texts. Each theme was specified by a set of inclusion rules, anchored with regular-expression patterns and exemplar phrases derived from the corpus (e.g., “default,” “pre-set,” “auto-,” and “opt-out” for choice architecture; “industry-wide,” “open letter,” and “standard” for transformative/market-design moves). Because campaigns often deploy multiple mechanisms, codes were non-mutually exclusive; a single transcript could receive several theme flags.

Analysis proceeded in two stages. Stage one produced binary theme flags at the transcript level and descriptive statistics—counts and percentages—using the transcripts of the cases. Stage two generated brief analytic vignettes for each theme and verifying that the cited text segments instantiated the code definition. Throughout, triangulation with the SLR’s conclusions in Chapter 2 guided interpretation.

Four priori categories were anchored in Chapter 2—transformative marketing, social marketing, nudging, and co-creation/co-design—while additional categories were permitted to emerge inductively. A light-touch dictionary procedure was used to flag candidate passages for each theme; these flags were then reviewed and consolidated into campaign-level codes. This hybrid procedure follows established practice in exploratory thematic work where the objective is descriptive mapping rather than saturation (Braun & Clarke, 2006; Nowell et al., 2017).

3.1.3 NLP ANALYSIS

3.1.3.1 RESEARCH DESIGN AND ANALYTICAL FRAMEWORK

This study adopts a multi-method natural language processing (NLP) framework to examine how sustainability marketing campaigns construct meaning through language, emotion, and framing. The decision to employ multiple techniques stems from the recognition that campaign discourse is multi-layered: it is simultaneously lexical (the words chosen), affective (the emotions conveyed), thematic (the issues emphasized), and syntactic (the assignment of responsibility). By integrating frequency analysis, lexicon-based emotion scoring, clustering, topic modeling, dependency parsing, and sentiment analysis, the research aims to provide a comprehensive account of discursive strategies employed in award-winning campaigns.

The overarching design is exploratory and descriptive, seeking not to test hypotheses but to generate an empirically grounded map of the rhetorical repertoires

mobilized in sustainability communication. Each technique was selected because of its suitability to capture a particular dimension of discourse, and the convergence of results across methods enhances interpretive validity.

3.1.3.2 CORPUS CONSTRUCTION AND PREPROCESSING

The empirical corpus comprises 184 transcriptions of award-winning marketing campaign videos promoting behavior change, drawn from the awards identified above. These entries correspond to 178 distinct campaigns, as some won several awards. The transcriptions range in length from brief slogans to extended narrative accounts and were systematically preprocessed to ensure consistency and comparability across subsequent analyses.

Standard NLP preprocessing steps were applied (detailed below). Texts were lowercased to eliminate capitalization biases and stripped of punctuation, numerals, and non-alphabetic characters using regular expression rules. Stopwords — common function words such as “the” or “and” that carry little semantic weight — were removed using the NLTK English stopword list. Lemmatization was performed using the *WordNet* lemmatizer, reducing inflected words to their semantic roots, thereby consolidating lexical variation.

This procedure produced a cleaned corpus (*Cleaned_Description.csv*), a standardized textual dataset suitable for lexical, thematic, and syntactic analysis. To capture affective dimensions specifically, a second corpus was derived by filtering all

tokens against the NRC (National Research Council of Canada) Emotion Lexicon (Mohammad & Turney, 2013). This Emotional_Description.csv corpus retained only words associated with one or more of the eight basic emotions (anger, anticipation, disgust, fear, joy, sadness, surprise, trust), or with polarity categories (positive vs negative emotions), allowing a focused examination of affective vocabulary.

3.1.3.3 LEXICAL AND FREQUENCY ANALYSES

3.1.3.3.1 N-GRAM MODELING & FREQUENCY DISTRIBUTION

The initial phase of the analysis focused on examining surface-level lexical patterns, which are the basic structures and arrangements of words in the text. To achieve this, N-gram modeling was employed using a bag-of-words approach. This method involves breaking down the text into unigrams (single words), bigrams (pairs of consecutive words), and trigrams (triplets of consecutive words). By doing so, it captures not only individual words but also multi-word collocations, which are combinations of words that frequently appear together. These collocations are particularly significant in marketing discourse, where slogans and catchphrases play a leading role in conveying messages effectively.

Frequency distributions were computed, and results were visualized through word clouds, which scale font size according to frequency and provide an accessible overview of the dominant vocabulary. Because raw frequency counts can be distorted by boilerplate or overly generic expressions, we undertook an iterative, manual refinement

using deletion lists. The procedure began with a full inspection of the raw frequency outputs; terms judged to be non-informative or context-independent (across unigrams, bigrams, and trigrams) were manually removed to produce a final clean list. The set of excluded items was reconstructed *ex post* by programmatically comparing the clean list with the original frequency list (cf. Appendix 9.5.2 for code), thereby identifying precisely which terms had been deleted. This approach provides a transparent trail and a reusable filter for future corpora—while preserving the possibility of reintroducing specific terms if later analyses warrant their inclusion.

3.1.3.3.2 TYPE-TOKEN RATIO

Beyond raw counts, lexical richness was assessed using the type–token ratio (TTR). TTR is calculated by dividing the number of unique words (types) by the total number of words (tokens) in each text. This measure provides insight into the variety and distribution of vocabulary: higher scores indicate greater lexical diversity, whereas lower scores point to more repetition or reliance on a limited set of terms. Although TTR is sensitive to text length—shorter texts tend to yield artificially higher scores—it remains a widely used indicator of linguistic variety and expressive range (McCarthy & Jarvis, 2010; Richards, 1987).

In the context of sustainability campaigns, lexical richness can be interpreted as a proxy for stylistic sophistication and narrative elaboration. Campaigns with higher TTR values may employ a wider range of expressions to articulate complex messages, evoke

emotions, or appeal to different audiences. By contrast, campaigns with lower TTR values may rely more heavily on formulaic or repetitive messaging, which can be effective for memorability but less indicative of linguistic diversity. Thus, TTR serves as a useful diagnostic for comparing the rhetorical strategies of campaigns, complementing frequency-based and thematic analyses.

3.1.3.3.3 TERM FREQUENCY-INVERSE DOCUMENT FREQUENCY

To complement measures of raw frequency and lexical richness, the analysis incorporated Term Frequency–Inverse Document Frequency (TF–IDF) weighting. Unlike simple frequency counts, which prioritize words that occur most often, TF–IDF adjusts for the distribution of terms across documents by down-weighting those that appear in nearly all texts while up-weighting those that are distinctive to documents (Sparck Jones, 1972). Formally, the method combines a term frequency (TF) component, which captures how often a word occurs in each document, with an inverse document frequency (IDF) component, which penalizes words that are ubiquitous across the corpus. The resulting scores highlight vocabulary that is unique to individual campaign descriptions and thus more likely to represent salient rhetorical or thematic choices.

The use of TF–IDF is well established in both information retrieval (Manning et al., 2008) and text mining (Aggarwal & Zhai, 2012), where it serves as a baseline yet powerful method for surfacing distinctive terms that may otherwise be overshadowed by high-frequency but semantically generic vocabulary. In the context of businesses’

sustainability marketing campaigns, TF-IDF offers a means of identifying linguistic markers that differentiate one campaign's messaging from another, thereby complementing frequency-based analyses that emphasize commonalities across the corpus. Therefore, TF-IDF provides an additional layer of interpretive granularity, particularly useful for capturing campaign-specific rhetorical strategies.

At the lower bound, the minimum possible score is zero, which occurs when a term is absent from a document or appears in every document, resulting in no discriminative value. At the upper bound, the maximum possible score is not fixed universally but depends on corpus size and term distribution. A term that occurs many times within a single document but in very few other documents will yield a high TF-IDF score, approaching the theoretical maximum defined by the logarithm of the corpus size (Manning et al., 2008). In practice, this means TF-IDF values highlight words that are frequent locally yet rare globally, with scores ranging from zero up to positive values bounded by both document length and the rarity of the term across the dataset.

For implementation, the analysis employed the *TfidfVectorizer* module from the Python *scikit-learn* library (Pedregosa et al., 2011). This tool allows for efficient computation of TF-IDF values across large text corpora and integrates seamlessly with other preprocessing steps such as tokenization, stopword removal, and lemmatization. The output of this procedure was a weighted representation of the campaign corpus in which each description could be profiled according to its most distinctive terms. As such,

TF-IDF not only enriched the methodological toolkit of this study but also ensured that both shared and differentiating features of sustainability discourse were systematically captured.

3.1.3.4 EMOTION PROFILING

To assess the affective content of campaign discourse, each transcript was analyzed using the NRC Emotion Lexicon (Mohammad & Turney, 2013). This lexicon-based resource maps over 14,000 English words to eight fundamental emotion categories—anger, anticipation, disgust, fear, joy, sadness, surprise, and trust—in addition to polarity classifications (positive vs. negative). The NRC lexicon is among the most widely used affective dictionaries in computational linguistics and has been repeatedly validated in fields such as sentiment analysis, computational social science, and psychology of language for capturing the emotional orientation of texts (Dodds & Danforth, 2010; Mohammad & Turney, 2013). Its application in this project allowed for a systematic exploration of how sustainability campaigns mobilize emotions to shape consumer perceptions and behavior.

The lexicon was applied to the corpus through a lexicon-matching procedure, in which each token in a transcript was compared against the entries in the NRC resource. Words with emotional associations were assigned to the corresponding categories, generating a structured representation of affective vocabulary within each campaign.

This enabled the analysis of not only which emotions were present but also how intensively they were expressed across campaigns.

Two metrics were derived from this procedure:

1. Emotion scores (*emotion_scores.csv*): Raw counts of words associated with each of the eight emotion categories, providing a quantitative distribution of affective terms across campaigns.
2. Emotional density (*emotional_density_scores.csv*): The proportion of emotion-bearing words relative to the total word count of a transcript. This measure captures the intensity of affective expression, complementing simple counts by reflecting how saturated a campaign is with emotional language.

This multi-metric approach acknowledges the multidimensionality of emotional appeal in marketing communication for sustainable behavior changes among consumers. Campaigns may differ not only in the type of emotions they invoke (e.g., joy versus fear) but also in the degree to which emotional vocabulary permeates their discourse. By triangulating scores, dominant labels, and density, the analysis captures both qualitative differences in affective strategy and quantitative variation in emotional intensity. In the context of sustainability communication, these insights shed light on how campaigns attempt to mobilize affect—whether by instilling trust, evoking fear of environmental

risk, or inspiring anticipation of future change—to persuade audiences and promote sustainable practices.

3.1.3.5 CLUSTERING AND TEMPORAL DYNAMICS

To uncover broader patterns of emotions used across campaigns, unsupervised clustering was applied. Clustering offers a means of identifying latent structures in data without predefined labels, allowing campaigns with similar affective repertoires to be grouped together (Jain, 2010). Among available algorithms, *k-means clustering* was selected due to its computational efficiency, interpretability, and long-standing application in text mining and social science research (Hartigan & Wong, 1979; MacQueen, 1967). K-means partitions high-dimensional data into *k* groups by minimizing within-cluster variance, thereby ensuring that campaigns assigned to the same cluster share similar emotional distributions.

Exploratory analyses were conducted with multiple values of *k* to evaluate stability and conceptual coherence. A three-cluster solution was retained, as it produced groupings that were both statistically stable and substantively interpretable. This configuration revealed distinct “families” of campaigns, each characterized by a shared emotional repertoire. Such clustering provides insight into the diversity of affective appeals employed in sustainability marketing communication, highlighting clusters of emotions campaigns tend to emphasize on.

In addition to clustering, temporal analyses were undertaken to examine how the use of emotional language evolved over time. Emotion scores were aggregated by year, producing two complementary series. The first series consisted of raw annual counts of emotion words, which reflects the total prevalence of affective vocabulary across all campaigns submitted each year. The second series consisted of normalized per-campaign averages, calculated by dividing annual totals by the number of campaigns available for that year. This normalization controls for fluctuations in dataset size, thereby ensuring that observed changes represent genuine shifts in rhetorical strategy rather than artifacts of sample volume (Grimmer & Stewart, 2013). Together, these approaches enabled the study to track not only how emotions cluster across sustainability marketing discourse but also how their relative prominence changes longitudinally.

3.1.3.6 TOPIC MODELING

To capture latent thematic structures in the campaign corpus, the analysis employed Latent Dirichlet Allocation (LDA), a probabilistic topic modeling method widely used in computational text analysis (Blei et al., 2003). Topic models such as LDA are designed to uncover patterns in large collections of documents by assuming that (i) each document is a mixture of latent topics, and (ii) each topic is a distribution of words that tend to co-occur across documents. This generative framework enables the discovery of underlying themes that are not explicitly annotated in the data but can be statistically inferred from word co-occurrence patterns. In other words, rather than relying solely on

frequency counts, LDA allows texts to be represented in terms of their probabilistic affiliation with multiple themes, thereby revealing nuanced structures in discourse (Blei, 2012).

Technically, LDA operates by iteratively estimating two sets of probability distributions: (1) the distribution of words within topics and (2) the distribution of topics within documents. These distributions are informed by Dirichlet priors, which control the sparsity of assignments, that is, how concentrated or diffuse topics are expected to be across documents and how tightly topics cluster around their most characteristic words. This probabilistic approach has made LDA one of the most influential tools in natural language processing and social science research for exploring unlabeled text corpora (DiMaggio et al., 2013; Jansson-Boyd & Zawisza, 2017).

In this study, two models were estimated, each with five topics. The first model was applied to the Cleaned corpus (where generic and non-informative words had been removed), enabling the identification of substantive themes such as waste reduction, energy and technology, and corporate responsibility. The second model was applied to the Emotional corpus (restricted to words with emotional or polarity associations), highlighting affective framings such as urgency, hope, and empowerment. This dual modeling strategy allowed for a distinction between content-oriented themes (what campaigns are about) and emotion-oriented framings (how campaigns seek to resonate emotionally with consumers).

Interpretation proceeded by examining the top keywords associated with each topic, which serve as linguistic markers of its thematic focus. In addition, campaign-level topic mixtures were analyzed to explore how individual entries combined different themes and framings. For instance, a campaign might strongly align with a “waste reduction” topic while also drawing heavily on affective framings of “hope” and “empowerment.” This mixture-based perspective reflects the reality that campaigns rarely rely on a single narrative but instead weave together multiple substantive and emotional dimensions to shape consumer engagement.

3.1.3.7 SUBJECT AND FRAMING ANALYSIS

Because the attribution of agency is a central element of persuasion, the analysis examined how campaigns construct responsibility through grammatical structures. To achieve this, dependency parsing, a natural language processing technique that maps the syntactic structure of a sentence by identifying words (tokens) and the grammatical relationships that link them (Jurafsky & Martin, 2025), was applied. Dependency parsing allows the exploration of how linguistic roles such as subjects, objects, and modifiers are distributed within texts.

The analysis was carried out using the *spaCy* natural language processing library (Ines Montani et al., 2023), specifically the *en_core_web_sm* pipeline. Within this framework, tokens annotated with the label *nsubj* (nominal subject) were extracted. These tokens represent the grammatical subjects of clauses—the entities that perform or are

attributed with actions in campaign discourse. To ensure that results reflect meaningful actors rather than grammatical filler, non-informative pronouns (e.g., “thing,” “something”) and generic placeholders were systematically filtered out.

This procedure provided a systematic and replicable way of identifying the agents of responsibility highlighted in campaign messaging. By aggregating subjects across the corpus, the analysis was able to reveal broader patterns in how agency is discursively framed. Campaigns could then be compared according to whether they emphasized:

- Collective responsibility, through subjects such as “we,” “people,” or “communities.”
- Individual responsibility, through direct address to the audience with subjects like “you.”
- Institutional responsibility, through references to companies, brands, or organizations.

Such distinctions illuminate the rhetorical strategies by which sustainability campaigns seek to allocate responsibility for change. Whereas appeals to individual agencies encourage personal action, appeals to collective or institutional actors situate sustainability within broader systems of shared accountability. This way, dependency parsing offers a conceptual lens into how campaigns frame the locus of responsibility in pursuit of persuasive impact.

3.1.3.8 COMPLIMENT SENTIMENT ANALYSIS

To validate and complement the lexicon-based findings derived from the NRC Emotion Lexicon, four sentiment analysis methods were applied. Sentiment analysis refers to the computational assessment of texts in terms of their evaluative orientation, often described along a continuum of positivity, negativity, and neutrality (Liu, 2012). Employing multiple approaches reduces the risk of methodological bias, as each tool captures various aspects of sentiment expression.

1. **TextBlob:** TextBlob is a Python library that applies a lexicon- and rule-based approach to sentiment analysis. It computes two key metrics: polarity (ranging from negative to positive sentiment) and subjectivity (ranging from objective to subjective language). Its simplicity and transparency make it a useful baseline tool for text evaluation (Loria, 2018).
2. **VADER** (Valence Aware Dictionary and sEntiment Reasoner): VADER is a sentiment model optimized for social media language, where informality, slang, and intensifiers are common. It is particularly sensitive to negations (e.g., “not good”) and amplifiers (e.g., “very important”), which are often missed by simpler lexicon-based approaches. VADER has been validated extensively for short, user-generated texts but is also adaptable to longer forms such as campaign transcripts (Hutto & Gilbert, 2014).

3. **Afinn**: The Afinn lexicon assigns integer scores (positive or negative) to words, and document-level sentiment is calculated as the sum of these values. Its strength lies in its straightforward scoring mechanism and transparent weighting, which provide interpretable aggregate sentiment measures across texts (Nielsen, 2011).
4. **BERT** (Bidirectional Encoder Representations from Transformers): BERT represents a more advanced, deep learning–based approach to sentiment analysis. Trained as a transformer model on large-scale corpora, BERT captures contextual meaning by considering both left and right word contexts simultaneously (Devlin et al., 2018). For sentiment tasks, BERT can be fine-tuned on annotated datasets, enabling it to detect subtle evaluative cues and contextual nuances beyond the reach of purely lexicon-based models.

In combining these approaches, this study hopes to ensure a robust triangulation of sentiment signals. Lexicon-based methods such as TextBlob, VADER, and Afinn offer transparency and interpretability, while BERT provides contextual sensitivity and adaptability to nuanced discourse. The convergence of results across these tools increases confidence that observed sentiment patterns reflect genuine rhetorical strategies rather than artifacts of a single methodological approach (Grimmer & Stewart, 2013).

3.2 RESULTS

3.2.1 WEB SCRAPING

By the end of the web scraping process, a combined dataset of all award-winning 186 campaigns was created (cf. Appendix 9.4). As outlined earlier, inclusion criteria were applied: campaigns that could not be recognized by language detection or transcription methods (including OCR – Optical Character Recognition), or those not executed by for-profit businesses, were removed from the final dataset, resulting in 184 campaigns.

In addition, when a single campaign was awarded across multiple competitions, it was retained as a repeated entry in the database. This repetition is deliberate, as it reflects the relative weight of such campaigns in the field and highlights the extent to which they were recognized by different award bodies. In turn, this approach strengthens the analysis by allowing the study to better capture the linguistic and communicative characteristics of campaigns that consistently achieved industry recognition, thereby offering a more nuanced understanding of the language strategies associated with award-winning sustainability marketing.

3.2.2 EXPLORATORY QUALITATIVE ANALYSIS

Drawing on 184 analyzable video-transcript cases, an inductive–deductive coding scheme was applied to characterize the behavioral mechanisms, strategic logics, and design moves used by for-profit firms when promoting pro-environmental behaviors via marketing activities.

Four levers foregrounded in Chapter 2—nudges, social norms, incentives, and identity-relevant appeals—were retained as a priori codes and extended with additional themes that emerged from the corpus (e.g., transformative marketing, co-creation/co-design, and infrastructure enablers). The resulting distribution provides an empirical counterpart to Chapter 2’s mapping of the theoretical terrain: social norms mobilization is the most prevalent pattern, present in 73 of 184 cases (39.7%); transformative marketing appears in 71 cases (38.6%); incentives (e.g., monetary) in 61 (33.2%); equity–inclusion–justice framings in 43 (23.4%); circularity/resource recovery in 38 (20.7%); nudges/choice architecture in 36 (19.6%); techno-solutionism in 29 (15.8%); education/awareness in 24 (13.0%); identity-relevant appeals in 23 (12.5%); social marketing for public good in 17 (9.2%); infrastructure enablers in 15 (8.2%); regulatory/legalistic levers in 12 (6.5%); co-creation/co-design in 10 (5.4%); and offsets/limits/accounting in 7 (3.8%).

These patterns resonate with the literature’s emphasis on social influence and choice architecture/nudging (Boenke et al., 2022; Gallopel-Morvan & Crié, 2022; Thaler & Sunstein, 2008; White et al., 2019), while also revealing underutilization of participatory

co-creation and legally binding approaches that could address the well-documented intention–behavior gap and social desirability dynamics (Delmas & Burbano, 2011; Sheeran, 2002).

Across cases, social norms mobilization functions through public adoption by salient reference groups, norm-signaling language, and visible collective commitments. Tide’s *Turn to Cold* enlisted NFL teams and celebrities to normalize cold-water washing, transforming a private household habit into a socially legible norm. Corona’s *Plastic Fishing Tournament* used competitive social proof among fishers to reframe “catching plastic” as community-valued behavior, while National Geographic’s *Green Definition* framed energy-saving viewing as something “everyone” can do simultaneously. DP World’s *Move to –15 °C* crystalized a descriptive norm at the inter-firm level by inviting competitors to co-sign an open industry standard. These executions align with evidence that descriptive and injunctive social norms can produce large, durable effects when messaged with care to avoid boomerang effects (Allcott, 2011; Boenke et al., 2022; Cialdini, 2003; Schultz et al., 2007; White & Simpson, 2013).

The second most common pattern, transformative marketing, goes beyond persuasive messaging to re-design offerings, standards, or market infrastructure for societal well-being (Anderson et al., 2013; Kumar, 2018). DP World’s *Move to –15 °C* altered a century-old logistics standard without new capex; Google and American Airlines piloted AI-guided contrail avoidance tools that re-specify routing practices with

measurable climate benefits; Renault's *Plug-Inn* platform reconfigures EV access through peer-to-peer charging; and Unilever's *Smart Fill* replaces unit packaging with in-store dispensing. These initiatives exemplify a transformative marketing logic in which firms create new value propositions that make the sustainable choice easier, cheaper, or the default, thereby mitigating the attitude/intention–behavior gap highlighted in Chapter 2 (Sheeran, 2002; White et al., 2019).

Incentives appear in one-third of cases (33.2%), frequently paired with norms and platform design. Corona paid fishers per kilogram of “plastic catch,” Life Nutrition's *Reversible Barcode* added a one dollar “reverse scan” donation at checkout, and Curry's' trade-in program monetized household e-waste. These examples reflect robust evidence that well-targeted, salient incentives can unlock adoption, particularly when they complement (rather than substitute for) intrinsic and normative motives (Gneezy et al., 2011). Nudges—defaults, simplification, salience, and timely prompts—are present in about one-fifth of the corpus (19.6%) (Gallopel-Morvan & Crié, 2022; Thaler & Sunstein, 2008). Husqvarna's *Rewilding Mode* makes biodiversity a one-button lawn-care default; Nest's eclipse intervention pre-cooled homes so that thermostats could “ride through” a temporary dip in solar generation; and Tide's *Turn to Cold* combined salient on-screen prompts with perceived efficacy. This moderate incidence of nudges, relative to norms and incentives, supports Chapter 2's concern that nudging often remains conceptually central yet operationally secondary—deployed most effectively when bundled with

social proof and capability enhancements rather than as information-only appeals (White et al., 2019).

Identity-relevant appeals are used sparingly (12.5%) but powerfully when tethered to group affiliations. Tide leveraged team fandom to legitimize new washing routines (“*we wash in cold*”), and Andel’s pro-wind campaign reframed acceptance as part of local civic identity. Such tactics leverage self-signaling and moral identity processes that can sustain behavior change beyond initial prompts (Van Der Werff et al., 2013). Meanwhile, social marketing for public good (9.2%) appears when firms collaborate with NGOs or public bodies on societal outcomes, as in Enel’s *Nest Address* (citizen science to protect storks) and *The Lion’s Share* (0.5% media-spend donations for wildlife) (Kotler & Zaltman, 1971; Peattie & Peattie, 2009).

Several additional themes help explain where practice departs from theory. Circularity/resource recovery (20.7%) is salient in market-facing innovations that reduce lifecycle impacts without requiring consumers to sacrifice performance: Dole’s *Piñatex* valorizes pineapple-leaf waste; Saltwater Brewery’s edible rings displace plastic; DB Breweries’ *Brewtroleum* repurposes brewing by-products. Techno-solutionism (15.8%)—AI, sensors, and engineered materials as primary levers—features in Google’s contrail effort, Fortum’s *Fish-Heart* (AI species detection in hydraulic passages), and WaterLight’s salt-ionization lanterns. Although technology provides new affordances, theory warns that it rarely suffices without complementary changes to incentives, norms, or

infrastructure (White et al., 2019). Education/awareness efforts remain visible (13.0%)—for example, Hamburg’s *Four Seasons by Climate Data* and the *Plastic Forecast*—yet Chapter 2’s synthesis cautions that information-only strategies struggle to overcome entrenched habits and structural barriers (Kollmuss & Agyeman, 2002; Sheeran, 2002).

Under-representation of co-creation/co-design (5.4%) constitutes a notable discordance with the participatory ideals increasingly advocated in sustainability transitions. Exceptions include Renault’s *Plug-Inn*, which invites villagers to share chargers and shape local tourism spillovers, and Corona’s tournament, which positions fishers as co-producers of environmental outcomes and livelihoods. The relative scarcity of co-created designs suggests missed opportunities to surface local constraints, reduce post-adoption friction, and build shared ownership—capacities linked in prior work to greater durability and legitimacy of change (Messiha et al., 2023; Prahalad & Ramaswamy, 2004; Tarabashkina et al., 2022). Likewise, infrastructure enablers (8.2%) and regulatory/legalistic strategies (6.5%) appear less frequently than one might expect given the structural nature of many environmental behaviors: Unilever’s refill stations and Renault’s peer-to-peer charging directly remove feasibility barriers, while Carrefour’s *Black Supermarket* and Ecuador’s *Nature Represented* articulate legal levers that lock in change. Finally, offsets/limits/accounting mechanisms (3.8%) (e.g., Doconomy’s *DO Black*) are present but rare, perhaps reflecting both implementation complexity and

concerns about moral licensing when used in isolation (Kouchaki, 2011; White et al., 2019).

Taken together, the corpus both corroborates and nuances Chapter 2's conclusions. The high salience of social norms and the frequent presence of incentives echo the literature's guidance on social influence and payoff structures. At the same time, the data foreground transformative marketing—market redesigns that change what is being asked of consumers—as a central pathway in contemporary practice, suggesting that the most visible “marketing” for sustainability increasingly occurs through product–service systems, standards, and platforms rather than message-only tactics (Anderson et al., 2013; Kumar, 2018). The comparatively modest incidence of nudges and identity appeals, and the limited use of co-creation and formal limits, helps to explain persistent discordances identified in the SLR: information and inspiration are common, but participatory design, durable enabling infrastructures, and binding commitments remain less prevalent. This imbalance plausibly contributes to the attitude/intention–behavior gap and to the risk of social desirability responding without sustained adoption (Delmas & Burbano, 2011; Sheeran, 2002).

3.2.3 NLP ANALYSIS

3.2.3.1 LEXICAL PATTERNS AND FREQUENCY DISTRIBUTIONS

3.2.3.1.1 N-GRAM MODELING & FREQUENCY DISTRIBUTION

The frequency analysis revealed that campaign discourse, after cleaning, is anchored in a narrow set of recurrent lexical items, many of which reflect the dominant vocabulary of contemporary sustainability issues. At the unigram level (single-word units), the most frequent terms include “water,” “plastic,” “energy,” and “climate.” These results are unsurprising, as such terms occupy a central position in global discourses on environmental responsibility (Dryzek, 2022). However, their ubiquity also highlights a degree of homogenization in sustainability messaging: campaigns converge on a shared lexicon that, while resonant, may limit opportunities for differentiation and innovation.

When progressing to higher-order n-gram analysis, the evaluation of bigrams (sequences of two words) and trigrams (sequences of three words) yield additional understanding of the rhetorical strategies present within the campaign texts. Frequently occurring bigrams such as “climate change” and “wind turbine” illustrate foreground salient issues alongside proposed interventions. Likewise, trigrams including “brand new product,” “fight food waste,” “turn cold washing,” and “reduce carbon footprint” convey solution-oriented imaginaries, often framed through directive language that encourages behavioral change. The recurrent use of such concise, action-driven phrases indicates a strategic reliance on sloganeering—a communicative approach recognized for

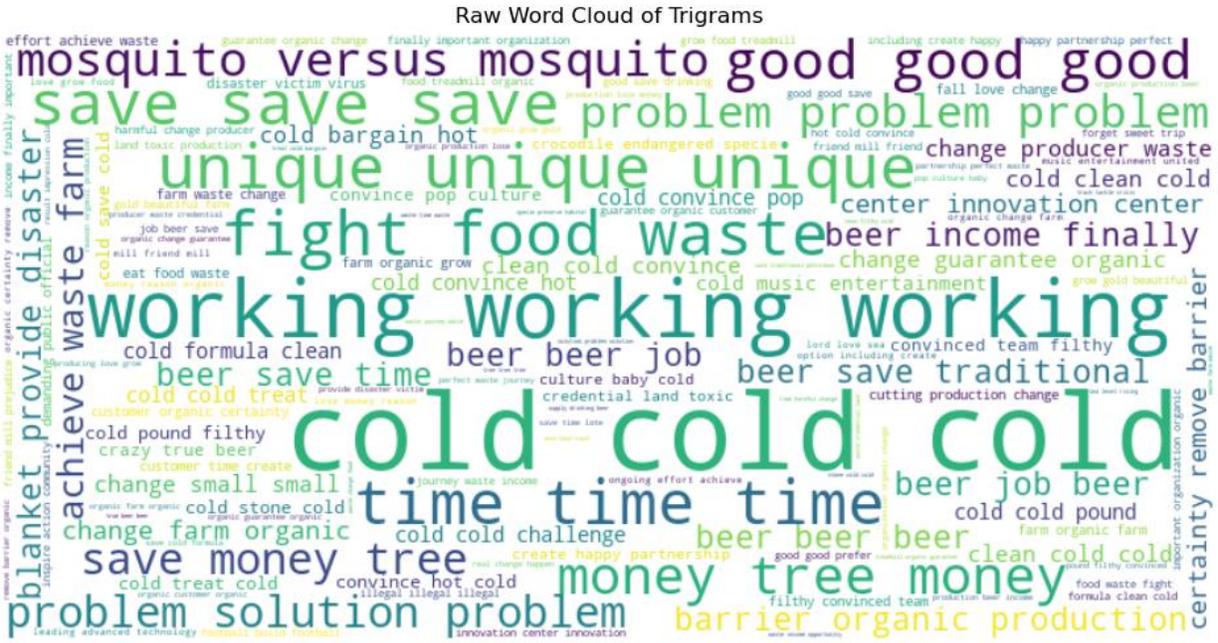


Figure 41 Most Frequent Trigrams in Award-Winning Campaigns

Similarly, the trigram word cloud displays three-word sequences as they occur in the raw transcripts. As previous outputs, the visualization is heavily shaped by transcriptional noise and redundancies, with frequent trigrams such as “working working working,” “cold cold cold,” and “good good good.” While these patterns illustrate the rhythm and repetition of spoken discourse, they do not contribute substantively to the identification of rhetorical strategies. At the same time, some trigrams (e.g., “save money tree,” “fight food waste”) reveal the presence of campaign-relevant expressions that warrant retention in cleaned analyses.

3.2.3.1.2 LEXICAL RICHNESS ANALYSIS

Lexical richness analysis provides an important counterpoint to raw frequency counts. Lexical richness refers to the diversity of vocabulary used in a text and as discussed previously, is often operationalized through the type–token ratio (TTR), the ratio of unique words (types) to total words (tokens) (McCarthy & Jarvis, 2010; Richards, 1987). Higher TTR values indicate greater diversity, while lower values suggest repetition. In the corpus, some campaign descriptions exhibited exceptionally low TTR scores, signaling reliance on a small pool of repetitive words and buzzwords. These campaigns prioritized concise slogans, which, while punchy, limited communicative variety. In contrast, other campaigns demonstrated markedly higher TTR values, suggesting the use of more diverse vocabularies and storytelling techniques that expanded beyond formulaic phrasing. This variation is significant: lexical diversity has long been associated with linguistic sophistication and, in persuasive contexts, with greater rhetorical effectiveness (Malvern, 2008).

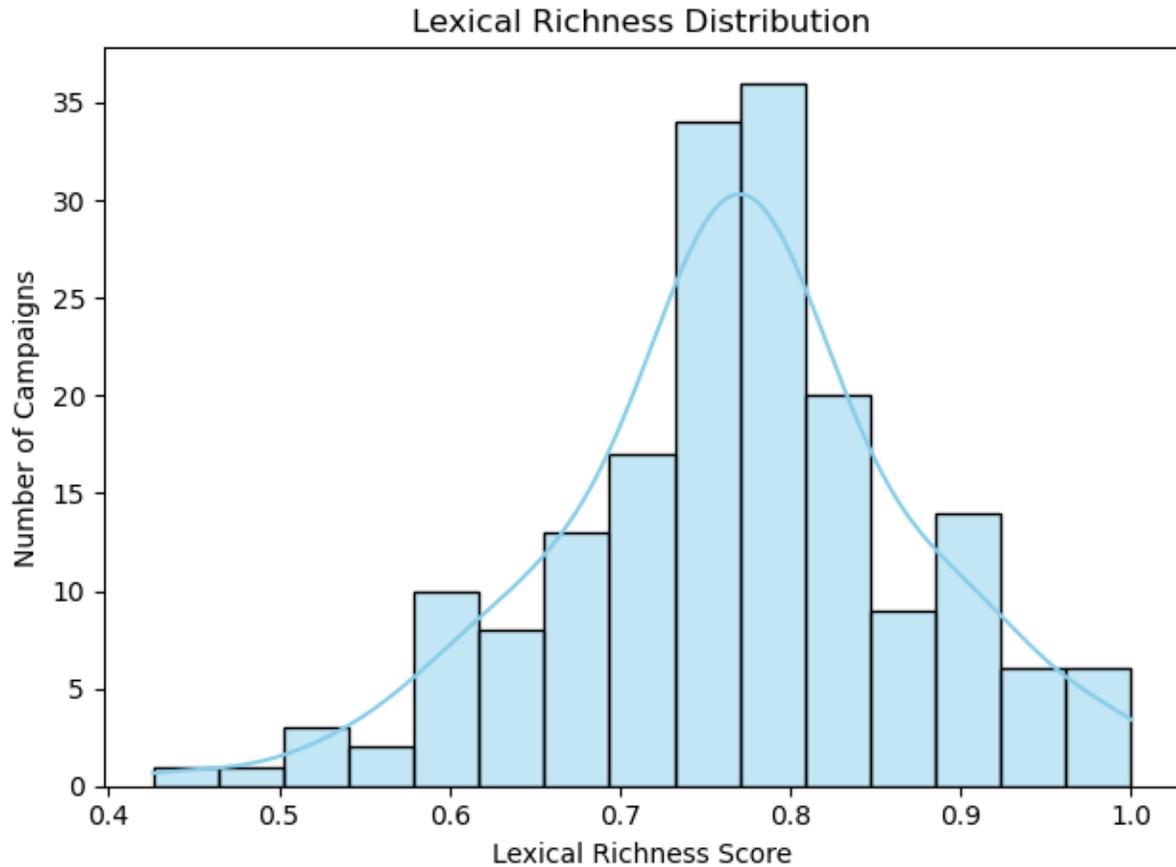


Figure 45 Lexical Richness Distribution of businesses' winning marketing campaigns for behavior changes.

The distribution of lexical richness scores across the corpus of 178 campaigns (cf. Figure 45) underscores both the general tendency toward moderately high vocabulary diversity and the important heterogeneity in stylistic approaches. Lexical richness ranged from 0.43 to 1.00, with a mean of 0.77 and a median of 0.77. The interquartile range (0.71–0.83) shows that most campaigns clustered tightly within an upper-middle band of scores, suggesting a dominant norm of moderate-to-high lexical variety.

The shape of the distribution provides further insight. The histogram reveals a slight right skew, with most campaigns concentrated between 0.70 and 0.85 but with a

long tail extending toward the maximum score of 1.00. This skewness indicates that although campaigns with extremely high lexical richness are rare, they nevertheless form a distinctive subgroup within the award-winning corpus. At the opposite end, a smaller left tail highlights campaigns with markedly lower scores, emphasizing repetition and formulaic language.

At the low extreme, “Cold Callers” (TTR = 0.43) and “Making the biggest shows, with the smallest footprint” (TTR = 0.47) exemplify campaigns where language is highly repetitive. These cases likely rely on the reiteration of key slogans or buzzwords, a strategy well established in advertising research for its ability to enhance memorability, brand recall, and processing fluency (Alter & Oppenheimer, 2009; Keller, 2009). While such campaigns may lack lexical diversity, their repetitive nature is not necessarily a weakness. Instead, it reflects a deliberate communicative choice to privilege catchiness and recall over richness and elaboration—an approach that can be particularly effective in contexts such as television or digital ads, where brevity and memorability are paramount.

At the high extreme, five campaigns (“La Escuela De La Sostenibilidad,” “Unplug Denmark,” “We light up our cities,” “Living our purpose,” and “Integrated Marketing for Midea New Windless Air Conditioner”) all achieved the maximum TTR score of 1.00. This means that every word in their transcripts, after cleaning, was unique, resulting in the complete absence of repetition. Such scores are rare in natural language and suggest

the presence of highly elaborated storytelling structures. Campaigns at this end of the spectrum appear to be very succinct or employ rich descriptive language, domain-specific terminology, and nuanced narrative development, emphasizing originality and stylistic sophistication. While this variety enhances expressive power, it also risks reducing linguistic reinforcement, that is, the reinforcement of key messages through repetition. Thus, extremely high lexical richness may embody a different rhetorical gamble: emphasizing novelty and depth at the possible expense of clarity and memorability.

Between these two extremes lies the modal cluster of campaigns with scores between 0.70 and 0.85. This middle group reflects a balanced rhetorical strategy, combining enough diversity to avoid monotony while still retaining some degree of repetition to anchor key concepts. Campaigns in this range exemplify what could be described as a “sweet spot” in sustainability messaging—rich enough to convey complexity and maintain audience engagement but not so varied as to obscure the central message. This balance resonates with theories of optimal processing fluency in persuasion, which suggest that messages are most effective when they are neither overly simplistic nor excessively complex (Reber et al., 2004).

Together, these findings demonstrate that award-winning sustainability campaigns do not adhere to a single rhetorical formula but instead exhibit multiple communicative repertoires:

- Formulaic campaigns at the low end, characterized by repetitive slogans and a narrow lexicon, emphasizing memorability and brand salience.
- Narratively rich campaigns at the high end, deploying wide-ranging vocabularies and elaborate discourse, signaling sophistication and thematic depth.
- Balanced campaigns at the center strategically blending repetition with variety to achieve both clarity and nuance.

This heterogeneity is theoretically important. Lexical diversity has long been associated with linguistic sophistication and is often interpreted as a proxy for persuasive depth (Malvern, 2008; McCarthy & Jarvis, 2010). At the same time, communication research emphasizes that repetition is a cornerstone of effective advertising, strengthening recall and increasing the likelihood of behavioral compliance (Tellis, 2004). The coexistence of high and low lexical richness in award-winning campaigns therefore suggests that both strategies can be successful, depending on contextual factors such as audience, medium, and campaign objectives.

3.2.3.1.3 TF-IDF ANALYSIS

As mentioned previously, unlike raw frequency counts, which privilege words that occur most often across the dataset, TF-IDF balances term frequency (TF) within individual winning sustainability marketing campaigns against inverse document frequency (IDF) across the entire collection (Robertson, 2004; Sparck Jones, 1972). As such, it highlights words that are highly salient within specific campaigns while discounting

those that appear uniformly across the corpus (Manning et al., 2008). TF-IDF helps surface distinctive vocabulary that might otherwise be obscured by high-frequency but semantically generic terms (Aggarwal & Zhai, 2012; Rayson & Garside, 2000).

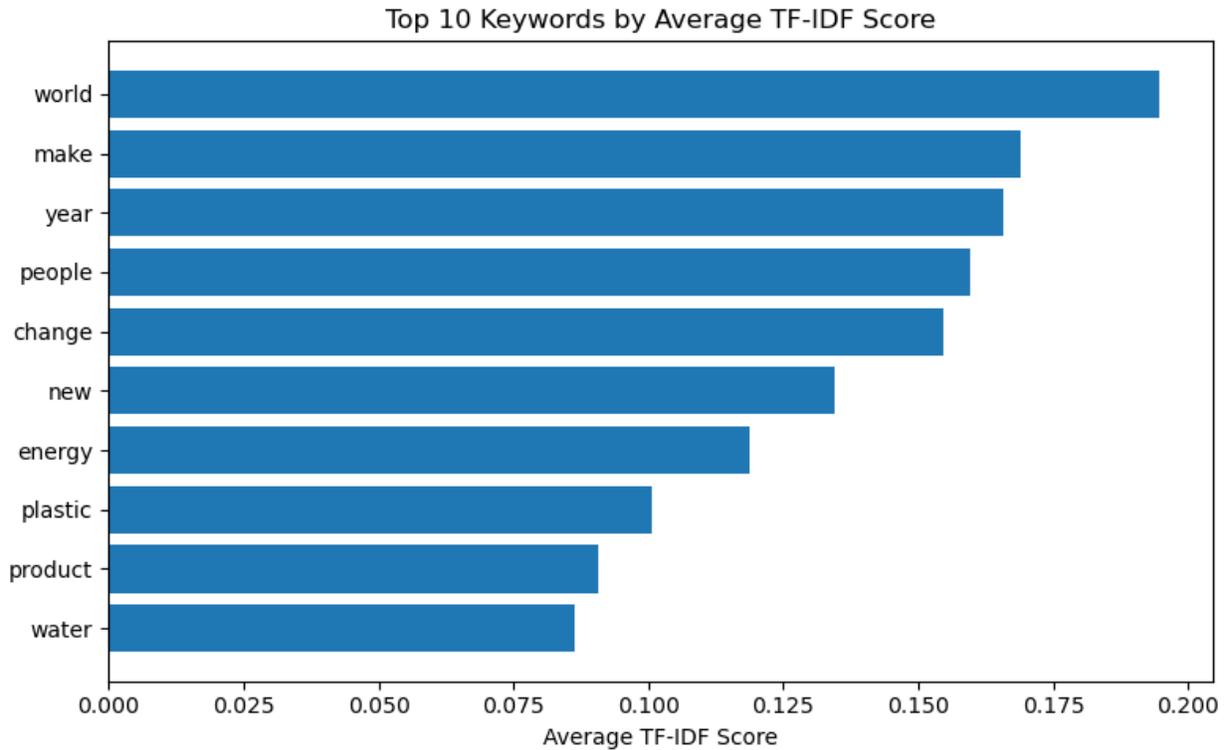


Figure 46 Top 10 Keywords by Average TF-IDF Score

In this analysis, the ten terms with the highest average TF-IDF scores were “world,” “make,” “year,” “people,” “change,” “new,” “energy,” “plastic,” “product,” and “water.” These terms fall into two analytically distinct layers.

Table 6 Top 10 Keywords by Number and Percentages of Appearances in Document

| Keyword | Number of campaigns | % |
|---------|---------------------|-------|
| world | 81 | 44.02 |
| make | 72 | 39.13 |
| year | 71 | 38.59 |
| people | 65 | 35.33 |
| new | 61 | 33.15 |
| change | 59 | 32.07 |
| energy | 35 | 19.02 |
| product | 33 | 17.93 |

| | | |
|---------|----|-------|
| water | 26 | 14.13 |
| plastic | 25 | 13.59 |

At the top of the list are generalized rhetorical terms, including “world” (present in 44.0% of campaigns), “make” (39.1%), “year” (38.6%), “people” (35.3%), “new” (33.2%), and “change” (32.1%). These tokens form the core rhetorical scaffold of award-winning campaigns, collectively constructing a discourse that emphasizes global scope (“world”), collective actors (“people”), temporal urgency (“year,” “new”), and agency (“make,” “change”). The prevalence of these terms suggests a degree of homogenization in sustainability marketing messaging, where campaigns converge on a shared persuasive register centered around urgency, globalism, and collective action.

By contrast, the second layer of TF-IDF results consists of content-specific environmental tokens such as “energy” (19.0% of campaigns), “product” (17.9%), “water” (14.1%), and “plastic” (13.6%). These terms represent selective thematic anchors, surfacing only in subsets of campaigns that foreground ecological issues. Their lower coverage demonstrates how campaigns differentiate themselves through domain-specific emphases, whether on energy transition, water conservation, plastic reduction, or sustainable products.

Table 7 Keywords co-occurrences

| Keyword 1 | Keyword 2 | Co-occurrences |
|-----------|-----------|----------------|
| change | world | 41 |
| world | year | 39 |
| people | world | 38 |
| make | world | 38 |
| make | people | 34 |
| people | year | 34 |
| make | year | 30 |
| new | year | 29 |
| change | make | 28 |

| Keyword 1 | Keyword 2 | Co-occurrences |
|------------------|------------------|-----------------------|
| new | world | 27 |
| make | new | 26 |
| change | year | 26 |
| change | people | 26 |
| new | people | 24 |
| change | new | 22 |
| product | world | 20 |
| energy | new | 18 |
| energy | make | 18 |
| people | product | 16 |
| product | year | 16 |
| energy | year | 16 |
| make | product | 16 |
| plastic | world | 15 |
| energy | world | 15 |
| make | water | 15 |
| energy | people | 14 |
| water | year | 14 |
| change | energy | 13 |
| new | product | 13 |
| change | product | 12 |
| water | world | 12 |
| new | plastic | 11 |
| plastic | product | 11 |
| people | water | 11 |
| people | plastic | 11 |
| change | plastic | 11 |
| plastic | year | 11 |
| make | plastic | 10 |
| change | water | 10 |
| product | water | 9 |
| new | water | 8 |
| plastic | water | 7 |
| energy | water | 7 |
| energy | product | 5 |
| energy | plastic | 3 |

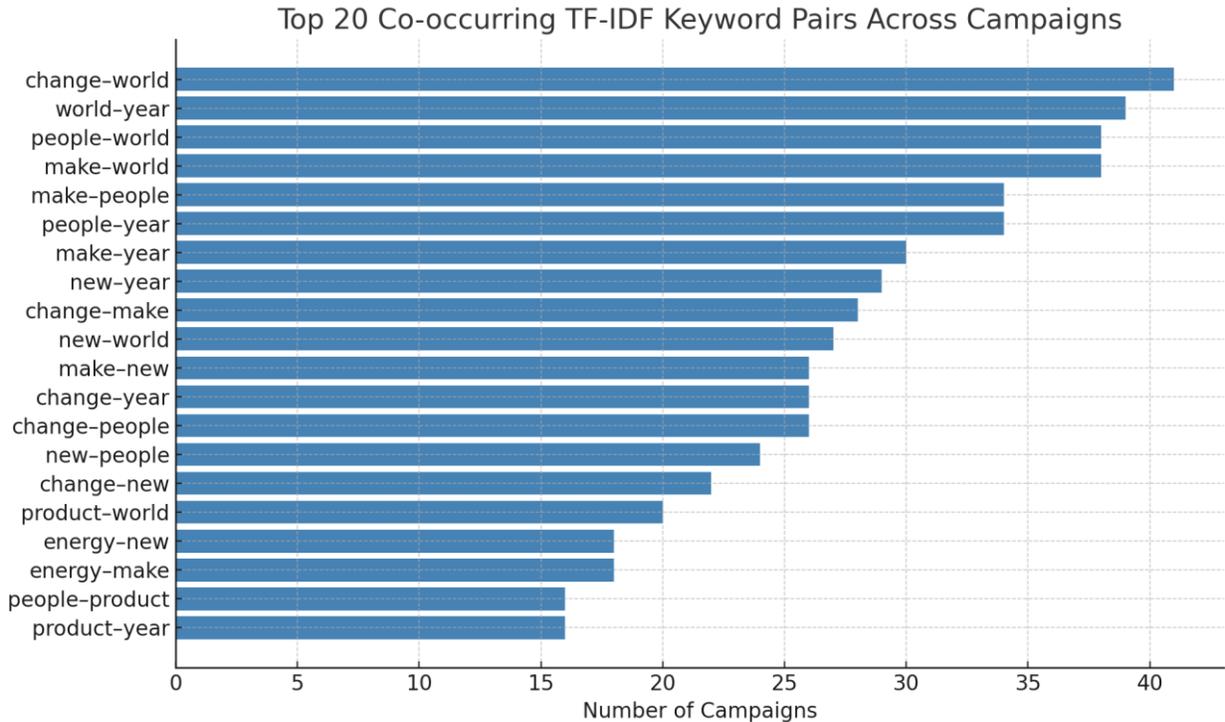


Figure 47 Top 20 Co-occurring TF-IDF Keyword Pairs Across Campaigns

Patterns of keyword co-occurrence reinforce this bifurcation. Among rhetorical terms, combinations such as “change”– “world” (41 campaigns), “world”– “year” (39), “people”– “world” (38), and “make”– “world” (38) dominate, illustrating the frequent pairing of global scope, temporal framing, and collective agency. These clusters exemplify the framing conventions of sustainability discourse: changing the world, shaping the future, making change together. In contrast, environmental tokens tend not to cluster with one another. For example, “product”– “world” appears in twenty campaigns and “energy”– “make” in eighteen, but co-occurrences among substantive tokens themselves (e.g., “energy”– “plastic” or “water”– “product”) are rare. This suggests that campaigns typically highlight one central environmental theme at a time,

framed within the more general rhetorical scaffold, rather than combining multiple substantive issues in a single narrative.

The TF-IDF analysis thus reveals a dual-layer structure in award-winning sustainability marketing communications. On the one hand, campaigns share a homogenized rhetorical repertoire, ensuring that their messages resonate with widely recognized discursive frames. On the other hand, campaigns seek differentiation by embedding distinctive terms tied to specific sustainability challenges.

3.2.3.2 THEMATIC STRUCTURES VIA TOPIC MODELING

Latent Dirichlet Allocation (LDA) topic modeling was applied to the corpus of sustainability campaign transcripts to uncover latent thematic structures in award-winning cases. As shown previously, two distinct corpora were analyzed: the preliminarily cleaned corpus and the emotional corpus, which emphasized affective vocabulary, to differentiate between substantive issue domains and emotional framing strategies (Blei et al., 2003; Mohr & Bogdanov, 2013).

3.2.3.2.1 STRUCTURAL THEMES IN THE CLEANED CORPUS

The five dominant topics extracted from the cleaned campaign corpus highlight the material, the corporates, and the systemic underpinnings of sustainability discourse (cf. Figure 48–Figure 52):

1. **Topic 1 – Resource Use and Industry Sustainability (Water, Carbon, Brewing):** This cluster foregrounds the salience of water, carbon, and

sector-specific practices (e.g., beer, brewery). The presence of water as the most prominent keyword underscores the resource intensity of food and beverage industries, reflecting widespread recognition of water scarcity as a strategic issue for firms (Peattie & Belz, 2010). The interlinkage with carbon further signals how companies increasingly position themselves in terms of emissions reduction, while anchoring sustainability to tangible industrial processes.

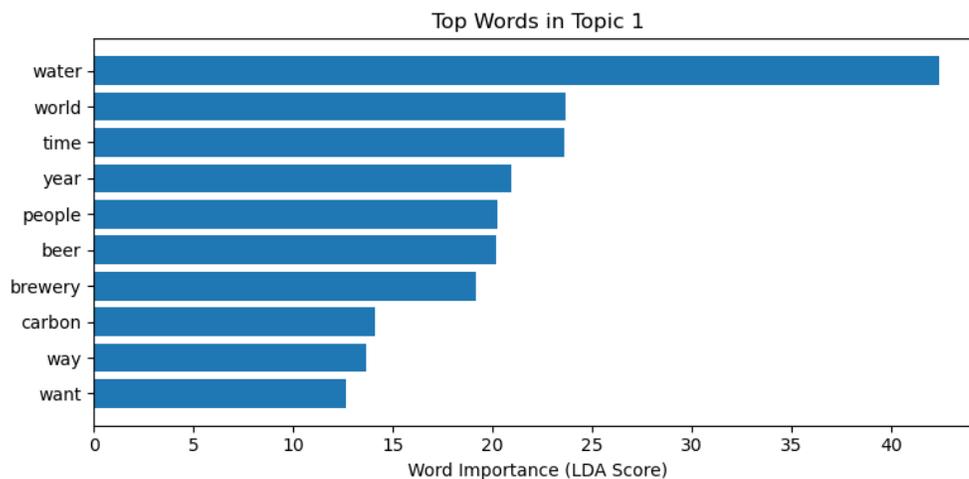


Figure 48 Top Keywords in LDA Topic 1 on Cleaned Corpus

2. Topic 2 – Corporate Futures in Food, Energy, and Climate Responsibility:

Here, business, food, and energy intersect with emission and future, pointing to corporate discourses that extend beyond compliance into narratives of long-term responsibility. Notably, the inclusion of woman reflects gender-sensitive framings of sustainability, consistent with scholarship on inclusive climate communication (Carvalho et al., 2013). The

forward-looking emphasis resonates with transformative narratives advocating for changes, often positioned in terms of intergenerational responsibility and planetary futures.

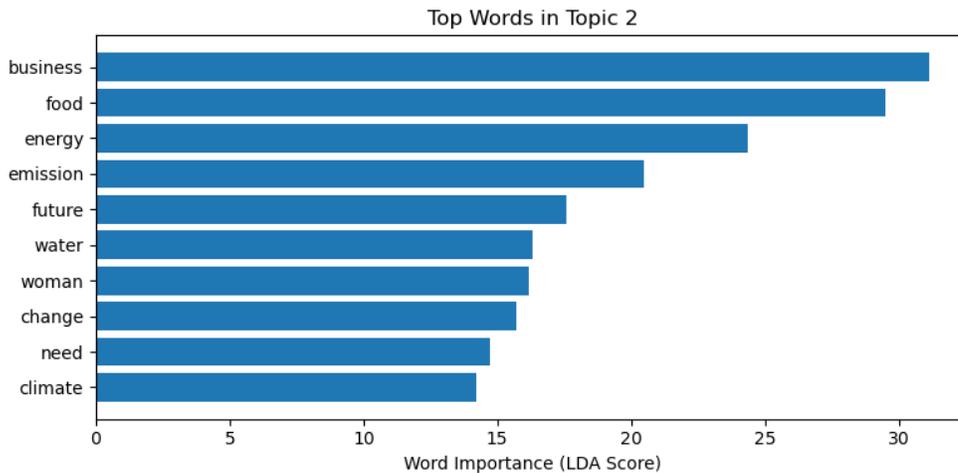


Figure 49 Top Keywords in LDA Topic 2 on Cleaned Corpus

3. **Topic 3 – Climate Change and Plastic Pollution Narratives:** The prevalence of climate, carbon, plastic, cold, and change makes this topic a direct reflection of environmental crises dominating public debates. Cold suggests energy efficiency and refrigeration-related initiatives, while help underscores appeals to collective action. This discourse is closely aligned with the heightened urgency surrounding the Paris Agreement, COP summits, and public mobilizations such as Fridays for Future (United Nations Development Program, 2015; Wallis & Loy, 2021).

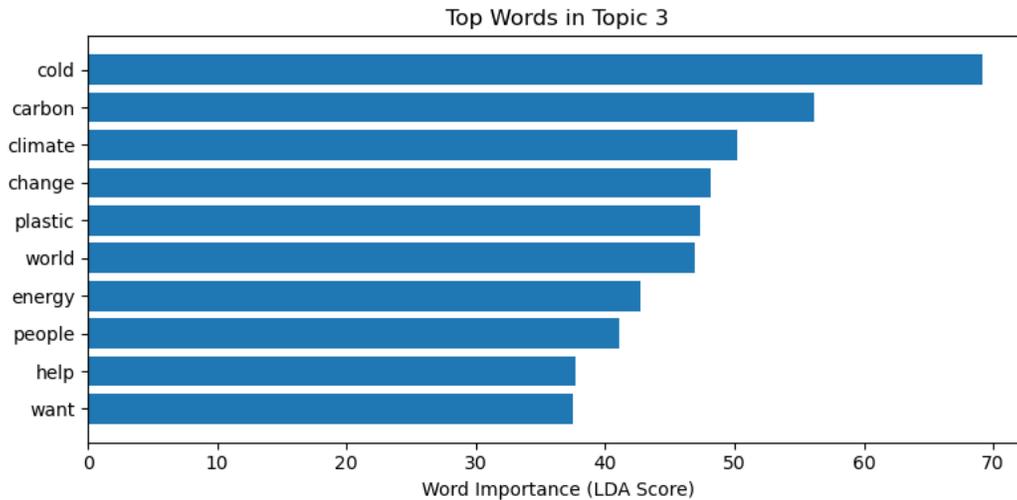


Figure 50 Top Keywords in LDA Topic 3 on Cleaned Corpus

4. **Topic 4 – Waste, Consumer Products, and Branding Discourses:** The centrality of product, waste, and brand signals how campaigns embed sustainability in consumer-facing narratives. This framing draws on branding strategies that link environmental responsibility with identity and consumption practices, thereby embedding ecological values into brand loyalty (Peattie & Crane, 2005). Such positioning reflects the rise of circular economic discourses, in which waste reduction is both an ecological imperative and a brand differentiation strategy.

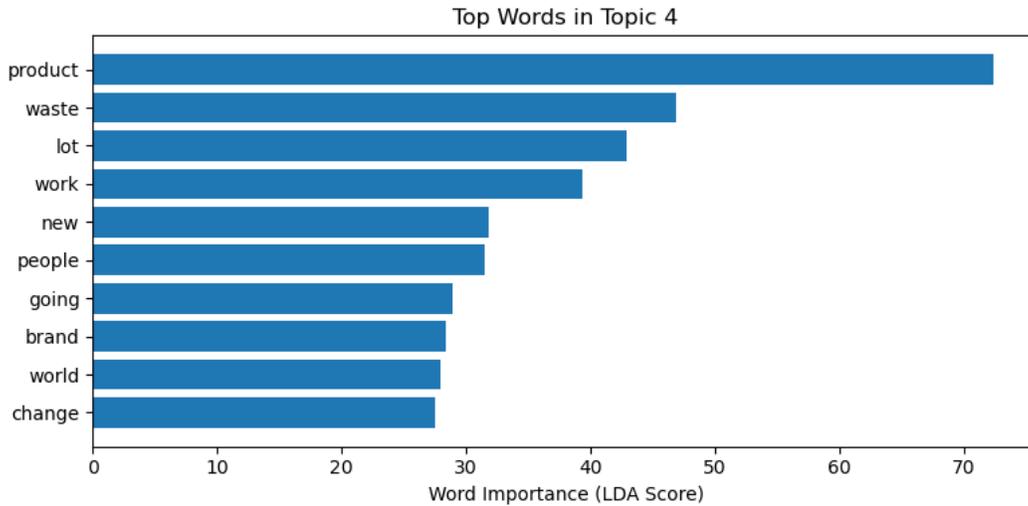


Figure 51 Top Keywords in LDA Topic 4 on Cleaned Corpus

5. Topic 5 – Innovation, Technology, and Organic Sustainability Practices:

With new, technology, organic, and tree as anchors, this cluster illustrates the dual emphasis on technological innovation (e.g., renewable energy, smart packaging) and organic authenticity (e.g., local farming, natural products). The presence of million points to the quantitative legitimation strategies used by firms (e.g., “millions of bottles saved”), echoing prior findings that metrics and quantification enhance the credibility of corporate sustainability claims (Nyilasy et al., 2014).

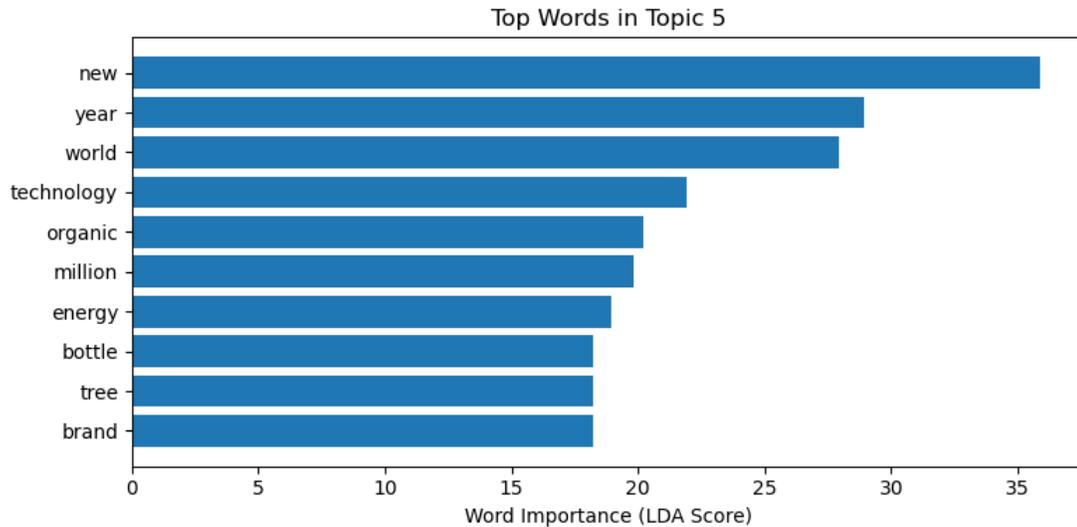


Figure 52 Top Keywords in LDA Topic 5 on Cleaned Corpus

Collectively, these topics demonstrate that corporate sustainability campaigns are structurally organized around resources, systemic change, crisis response, consumer waste reduction, and innovation. These themes provide the backbone upon which emotional appeals are subsequently layered.

3.2.3.2.2 AFFECTIVE THEMES IN THE EMOTION-LADEN CORPUS

The affective corpus reveals how award-winning marketing campaigns for behavior change frame these structural issues through emotional narratives designed to resonate with stakeholders.

1. **Topic 1 – Transformation and Community:** Anchored by words such as change, community, and important, this topic frames sustainability as a shared, moral imperative. The discourse invokes collective responsibility, consistent with work showing that appeals to community and shared identity enhance pro-environmental engagement (Reese & Junge, 2017).

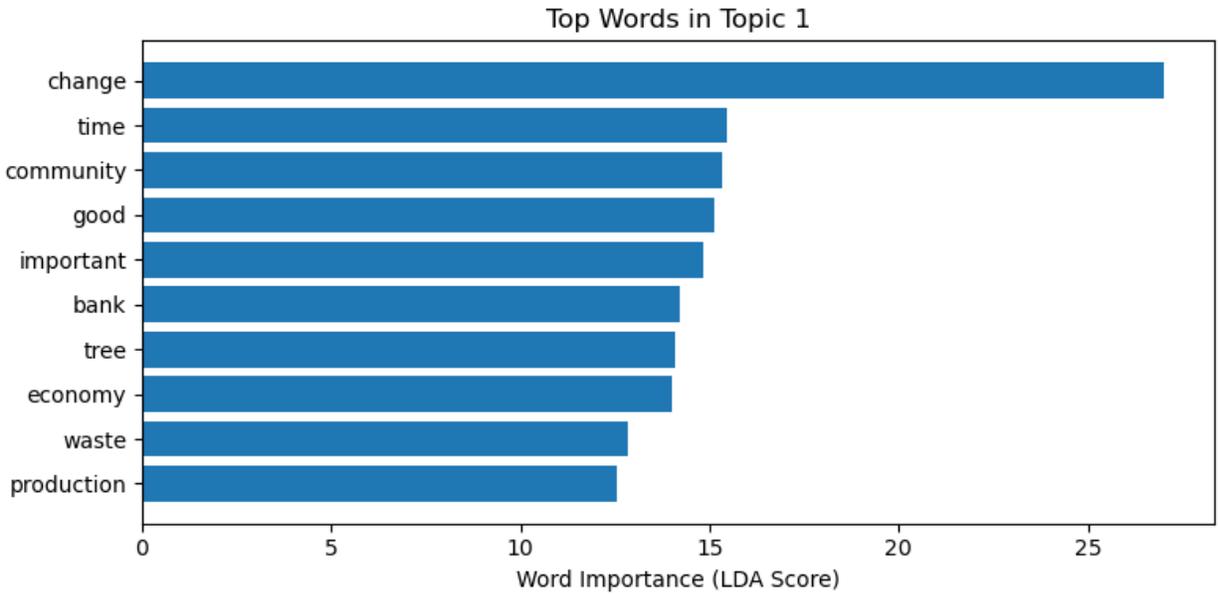


Figure 53 Top 10 Keywords per Topic from Emotional Descriptions – Topic 1

2. **Topic 2 – Technology, Solutions, and Problem-Solving:** Terms such as technology, problem, beer, and solution reflect innovation-oriented affective framings, especially in the beer industry, where urgency is balanced with optimism about human capacity to solve crises and joy. Such “techno-optimism” narratives have been observed as central to business-led climate communication (Bäckstrand & Lövbrand, 2006).

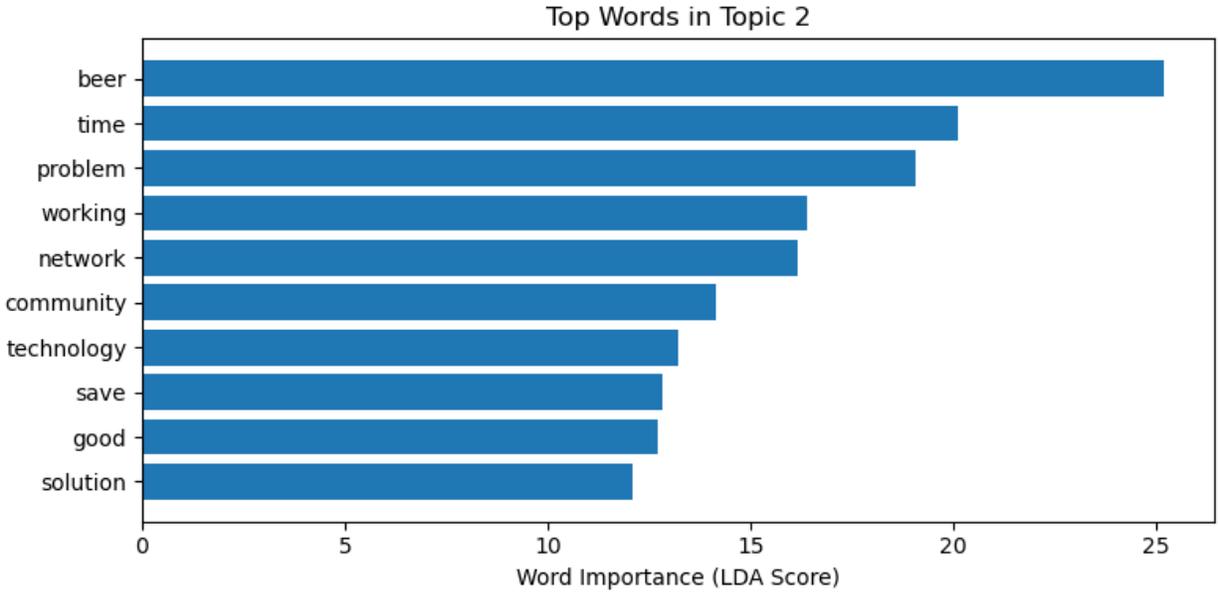


Figure 54 Top 10 Keywords per Topic from Emotional Descriptions – Topic 2

- 3. Topic 3 – Risk, Law, and Disaster:** With keywords like law, disaster, trash, and trust, this cluster reflects the emotional register of risk and governance. Campaigns here mobilize fear of catastrophe, tempered by appeals to trust in institutions and corporate actors—a pattern resonant with research on risk communication and environmental crises (Spence & Pidgeon, 2010).

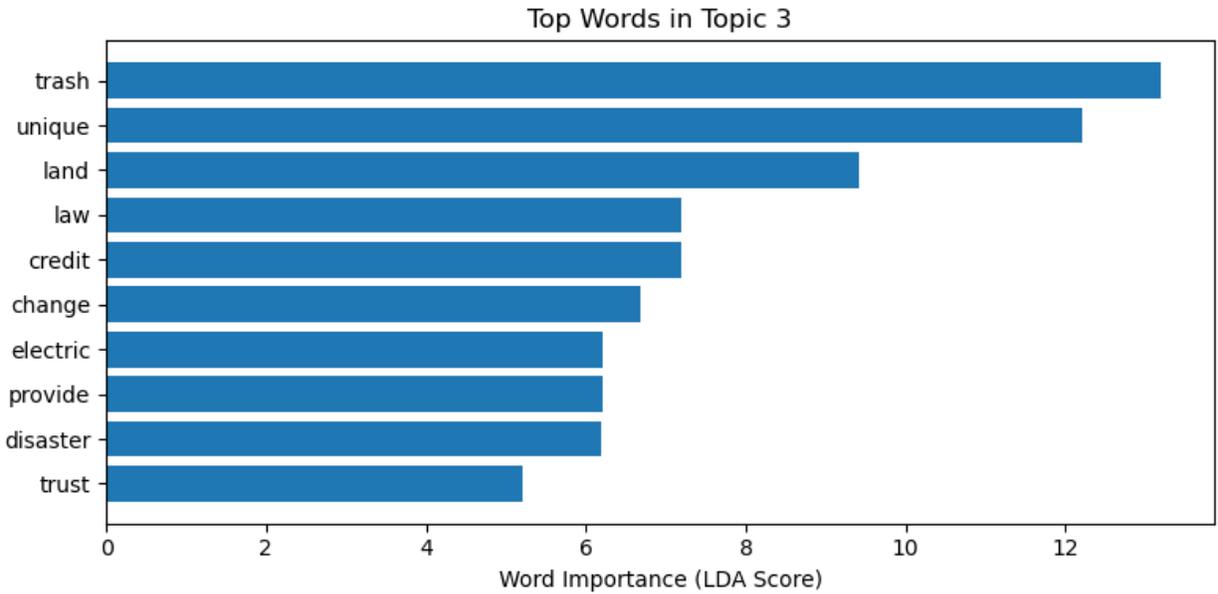


Figure 55 Top 10 Keywords per Topic from Emotional Descriptions – Topic 3

4. **Topic 4 – Green Action and Love:** The coupling of green, change, action, friend, and love highlight emotionally positive mobilizations. This topic reflects affective strategies that personalize sustainability, framing it as an act of care for loved ones and future generations (Nabi et al., 2018).

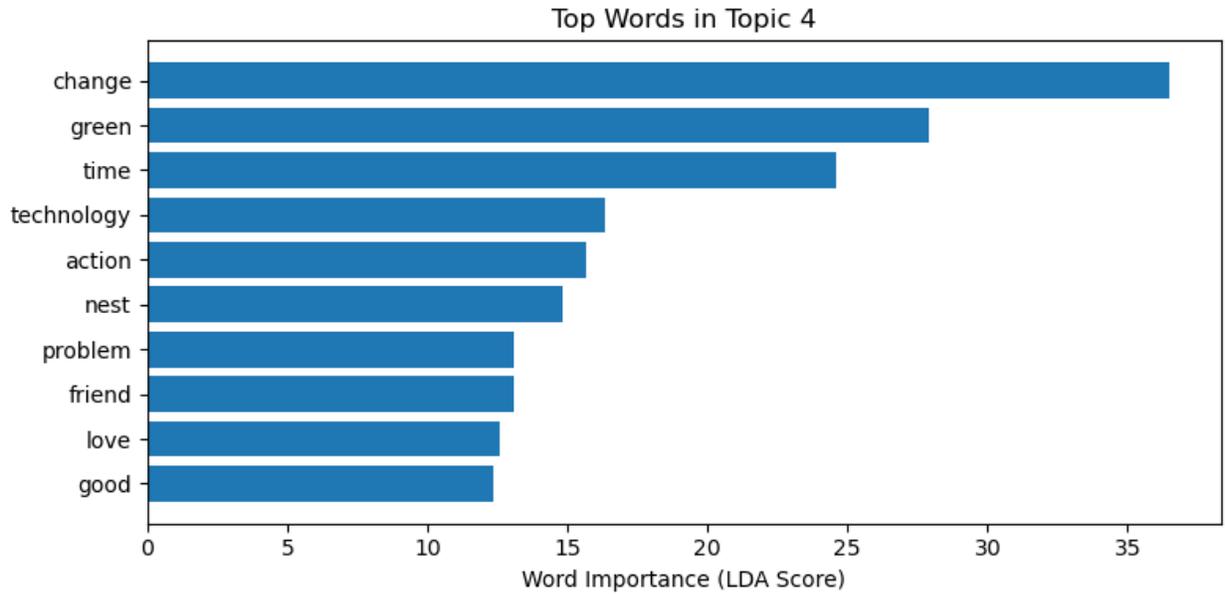


Figure 56 Top 10 Keywords per Topic from Emotional Descriptions – Topic 4

- 5. Topic 5 – Food, Waste, and Organic Practices:** Strongly anchored in cold, food, waste, and organic, this topic situates sustainability in everyday consumption. By appealing to both anxiety (waste) and virtue (organic), campaigns make abstract environmental challenges relatable and emotionally charged.

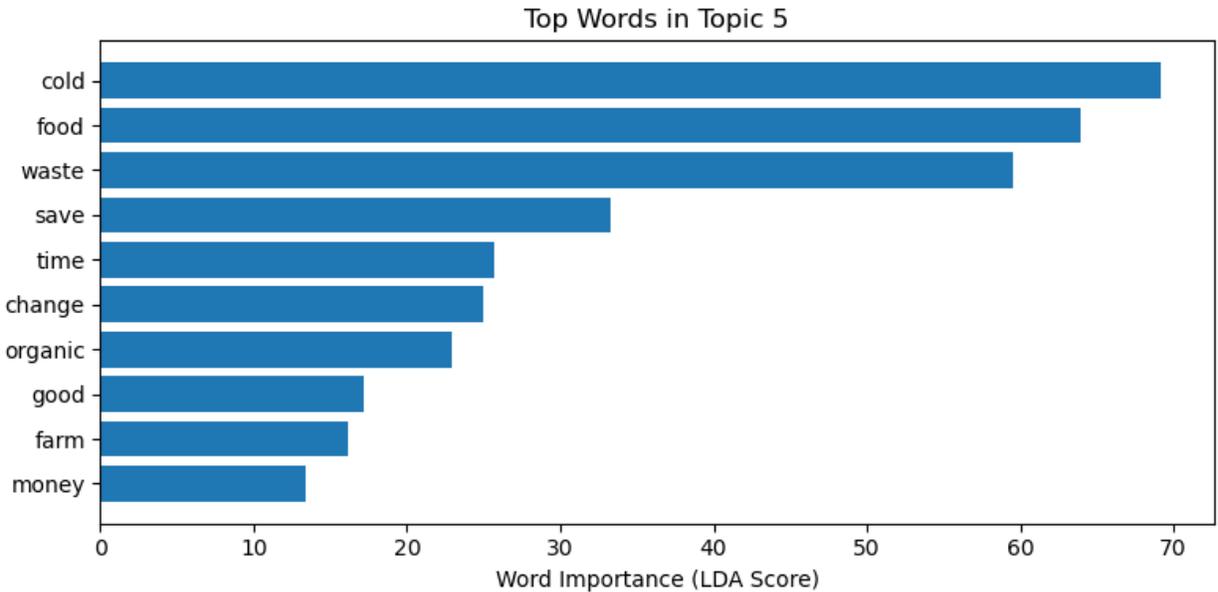


Figure 57 Top 10 Keywords per Topic from Emotional Descriptions – Topic 5

Altogether, these affective clusters demonstrate that campaigns selectively amplify emotions such as trust, anticipation, and fear, embedding them in structural narratives of resource use, climate change, and innovation.

3.2.3.2.3 STRUCTURAL-AFFECTIVE INTERPLAY

Comparing both corpora reveals how structural themes and emotional framing intertwine marketing for sustainability. Structural issues such as climate change and waste are rarely presented in isolation; they are infused with affective cues designed to mobilize trust, urgency, or community engagement. For example, campaigns addressing plastic waste (structural) often pair the narrative with appeals to care or love (affective), thereby embedding environmental action within moral and emotional registers. Similarly, innovation-oriented campaigns (structural) are coupled with optimism about human ingenuity (affective), reinforcing narratives of progress rather than decline.

This dual LDA analysis on thematic structures and affective strategies supports recent theoretical claims that sustainable marketing must be understood as both discursive and affective practice (Carvalho et al., 2013; White et al., 2019). Whereas structural topics establish credibility and situate campaigns within global environmental debates, affective tokens provide the emotional resonance necessary to capture attention, elicit engagement, and foster consumer alignment. The analysis thus provides a holistic understanding of how award-winning sustainability marketing campaigns seek to balance rational credibility with emotional resonance—a balance that is increasingly recognized as central to effective sustainability communication (Nyilasy et al., 2014; Peattie & Crane, 2005; Reese & Junge, 2017).

3.2.3.3 FRAMING OF RESPONSIBILITY

To further examine the distribution of agency in sustainability discourse, we applied dependency parsing to identify the grammatical subjects (*nsubj*) within campaign transcripts. In linguistic terms, the subject is the entity designated as performing the action in a sentence, thus providing insight into how responsibility is framed in discourse (Fairclough, 2010). By extracting and filtering subject terms, it is possible to assess whether campaigns emphasize individual, collective, or institutional agents in their narratives of change.

3.2.3.3.1 SUBJECT EXTRACTION

The filtered subject frequency analysis (cf. Figure 58) revealed that the most frequently occurring subjects were personal pronouns such as “I” (83), “we” (52), and “you” (38), alongside collective categories such as “people” (76) or “world”(29). Institutional actors such as “company” (15), “community” (12), and “brand” (11) were markedly less frequent.

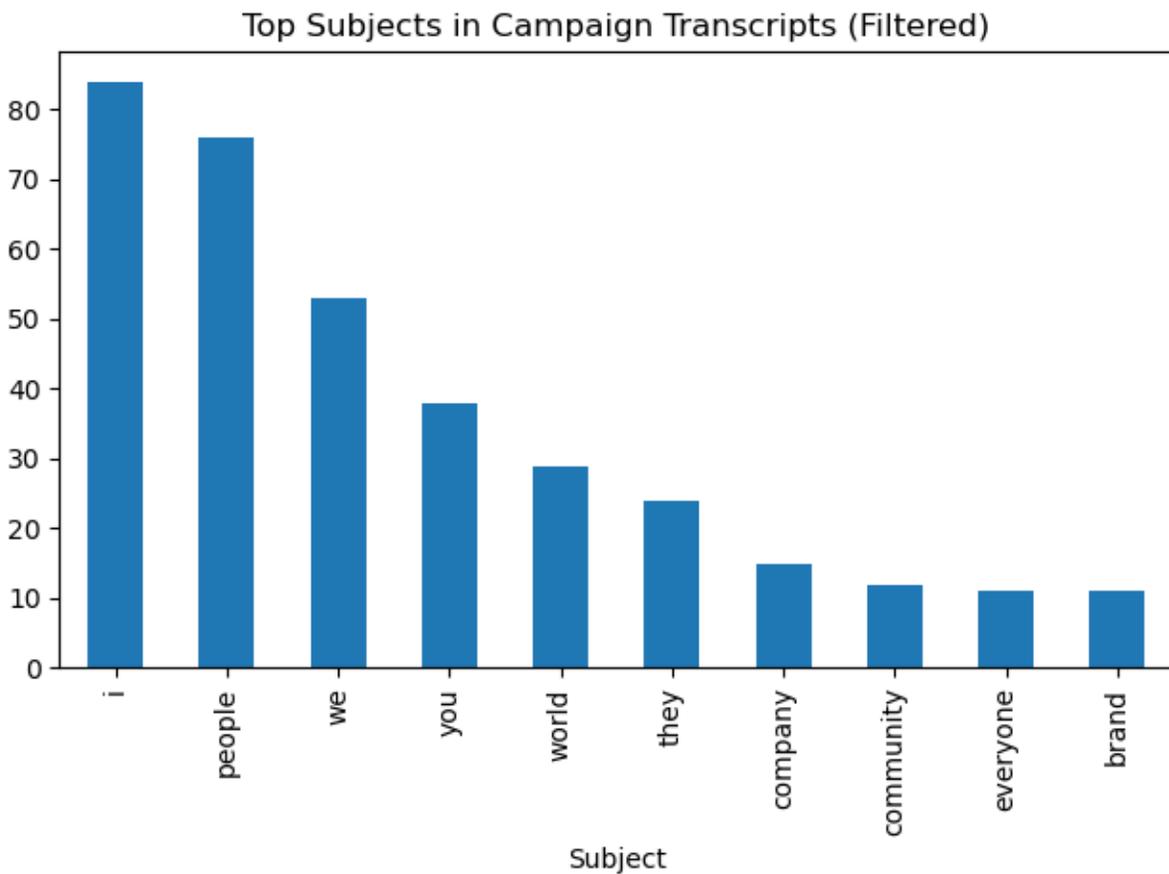


Figure 58 Top Subjects in Campaign Transcripts after cleaning.

This distribution indicates that award-winning sustainability campaigns construct agencies at the level of individual consumers and collective publics, rather than

corporations or industries. The findings align with previous scholarship noting the rhetorical tendency of sustainability communication to foreground individual and collective responsibility while downplaying systemic drivers of unsustainability (Maniates, 2001; Peattie & Peattie, 2009).

3.2.3.3.2 AGENCIES INTERPRETATION

The prominence of “I” and “we” reflects what Banet-Weiser (2012) describes as the discursive construction of authenticity in brand culture, where personal and collective voices are mobilized to foster trust and legitimacy. The subject “we” is particularly polysemous: it suggests inclusivity and shared responsibility but also risks collapsing the boundary between corporate and consumer actors, thereby masking power asymmetries (Hall, 1985; Weder et al., 2021).

The frequent use of “you” underscores the personalization of responsibility, directly addressing the audience and positioning the consumer as the agent of transformation. Escalas (2004) terms this rhetorical technique narrative transportation, where the individual is invited to imagine themselves as the protagonist of the sustainability story. This strategy resonates with findings in social psychology that direct, personalized appeals can be effective motivators of behavior (Moser, 2010). However, it also risks reinforcing “green consumerism” – the idea that sustainability can be achieved primarily through individual purchasing decisions (Nyilasy et al., 2014).

By contrast, institutional subjects such as “company,” “industry,” and “community” appeared far less often. This imbalance illustrates what Maniates (2001) identifies as the individualization of responsibility, where systemic issues rooted in global production and corporate practices are reframed as matters of individual choice. This discursive move is characteristic of neoliberal logics of individualized responsibility, which prioritize market mechanisms, consumer behavior, and voluntary action over regulation and structural change (Shove, 2010). Neoliberalism, broadly understood, is an economic and cultural paradigm that shifts responsibility for systemic problems onto individuals and away from institutions or states (Brown, 2015) (Brown, 2015). In sustainability marketing, this manifests in appeals to recycle, consume ethically, or adopt sustainable lifestyles, while less attention is given to lobbying for regulatory interventions or confronting corporate malpractices (Guthman, 2007).

Interestingly, the subject “community,” while infrequent, signals attempt to construct sustainability as a shared social endeavor. This aligns with traditions of social marketing, where collective practices, networks, and norms are leveraged to foster pro-environmental behaviors (Peattie & Peattie, 2009). However, its limited prevalence compared to “you,” or “we” suggests that such community-centered framings remain peripheral in award-winning marketing campaigns for sustainability by businesses.

Overall, the subject-extraction results reveal a rhetorical paradox. On the one hand, campaigns clearly acknowledge sustainability as a shared societal challenge,

invoking “we” and “people” to mobilize collective responsibility. On the other hand, the overwhelming reliance on “I” and “you” reinforces a consumer-oriented discourse that foregrounds personal lifestyle changes as the solution, thereby deflecting attention from corporate or industrial accountability. This duality reflects the consumer-facing orientation of award-winning marketing campaigns but also perpetuates neoliberal narratives (Maniates, 2001; Shove, 2010).

These findings contribute to broader debates on the politics of sustainability communication. By privileging individual agencies, campaigns foster empowerment and accessibility, yet they simultaneously constrain the discursive space for systemic critique. Understanding this dynamic is crucial for scholars and practitioners alike, as it shapes both the cultural imagination of sustainability and the range of solutions perceived as viable.

3.2.3.4 EMOTION-BASED CLUSTERING

The systematic clustering of campaigns according to their emotional composition revealed three distinct and theoretically meaningful groups (cf. Figure 59 and Figure 60). The identification of these clusters is consistent with a growing body of research demonstrating that discrete emotions shape message perception, decision-making, and behavioral outcomes across domains of sustainability communication and social marketing (Lerner et al., 2015; Nabi et al., 2018; Smith & Ellsworth, 1985). The clusters share similar emotions yet differ in their magnitude. Whereas some campaigns rely on

intense and multi-faceted emotional expression, others deploy emotion sparingly or balance positive and negative tones in moderation.

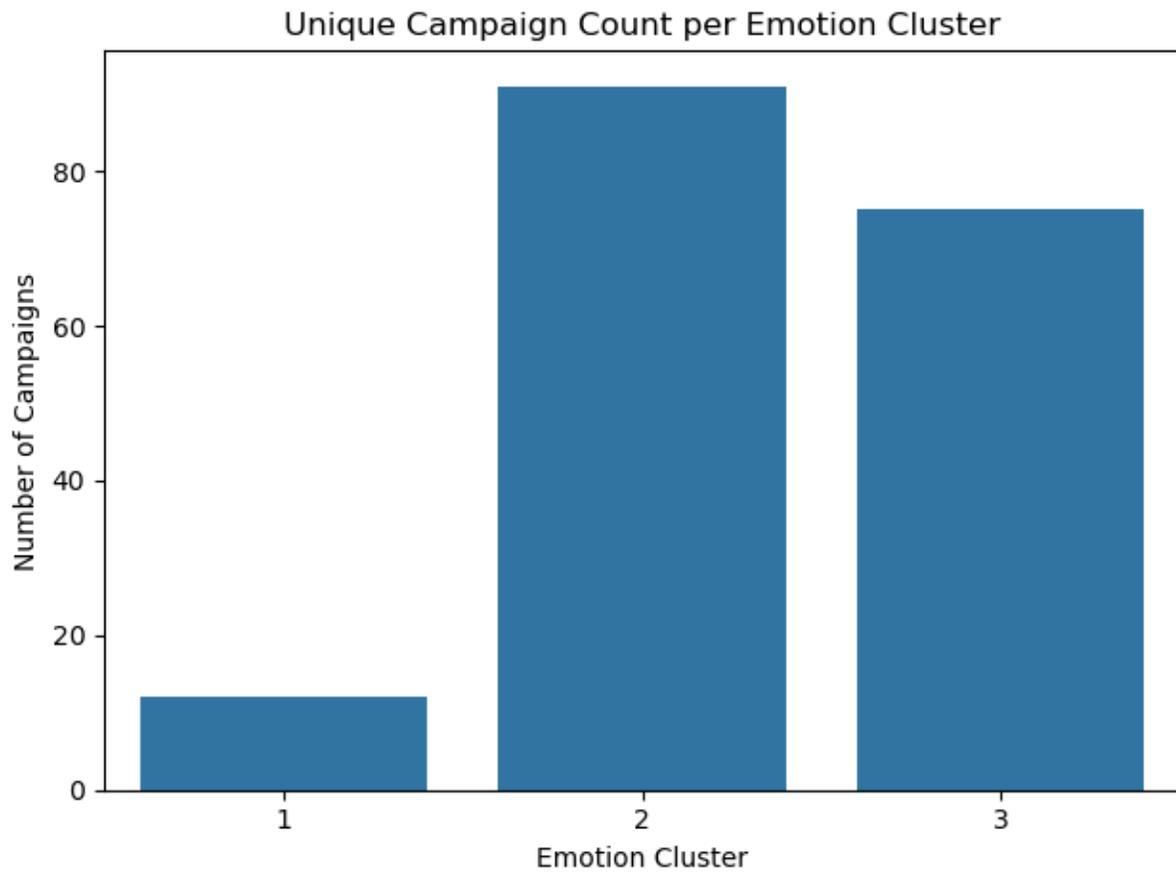


Figure 59 Unique Campaign Count per Emotion Cluster

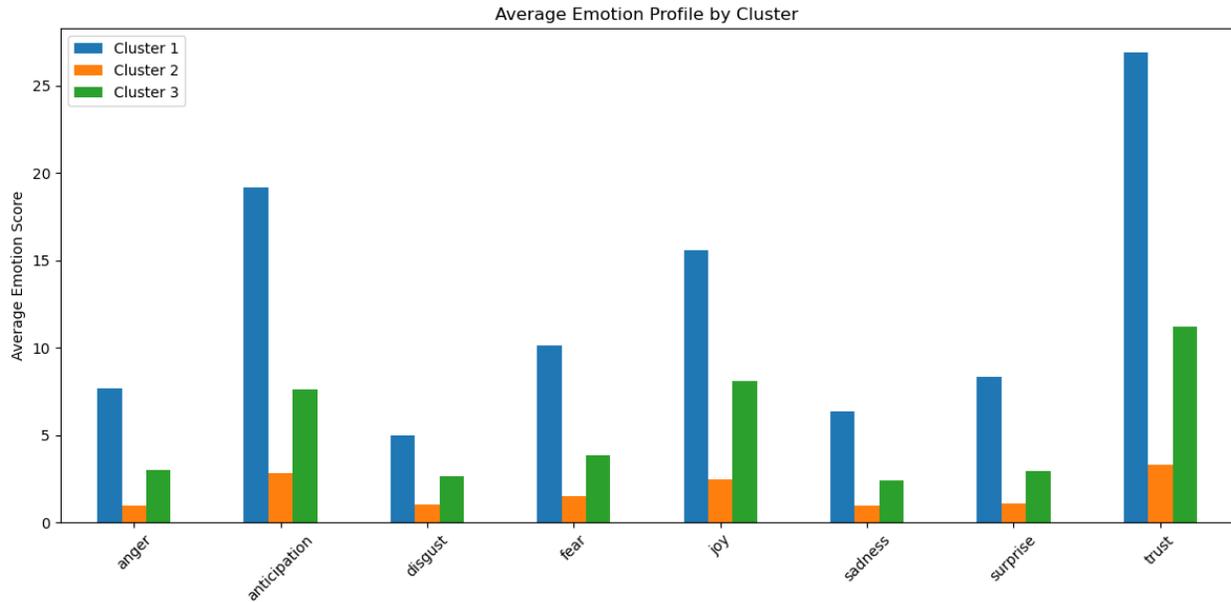


Figure 60 Average Emotion Profile by Cluster

3.2.3.4.1 CLUSTER 1 – HIGH-INTENSITY APPEALS (6.7%)

Cluster 1, the smallest group (n = 12; 6.7%), is defined by consistently elevated levels across all emotions (cf. Figure 60). Trust, anticipation, joy, fear, anger, and surprise all peak in this cluster relative to others. Rather than privileging one dominant emotion, these campaigns employ a saturated affective palette that conveys urgency, confidence, and energy simultaneously.

High-intensity campaigns have both advantages and risks. On one hand, emotions such as trust and joy can enhance credibility and broaden engagement, consistent with the broaden-and-build theory of positive emotions (Fredrickson, 2001). On the other hand, heightened fear and anger mobilize threat sensitivity and vigilance, aligning with prospect theory’s principle that losses loom larger than gains (Kahneman & Tversky,

1979). When combined, this configuration may capture attention powerfully, increasing salience and memorability.

Nonetheless, excessive intensity may also overwhelm audiences. Research on climate communication warns that fear appeals without constructive pathways can trigger defensive avoidance (O'Neill & Nicholson-Cole, 2009; Rossiter & Thornton, 2004; Sutton, 1982). Therefore, while Cluster 1 campaigns demonstrate the potential of “all-in” emotional appeals, their rarity suggests that award committees may view such saturation as less sustainable or less transferable across diverse audiences.

3.2.3.4.2 CLUSTER 2 – MUTED / LOW-INTENSITY APPEALS (51.1%)

Cluster 2, the majority group (n = 91; 51.1%), is marked by uniformly low emotional scores across all categories. Campaigns in this cluster rely on trust, joy, anticipation, and fear only minimally, maintaining a subdued affective profile. This indicates a preference for low-intensity or informational framing, foregrounding rational or descriptive appeals rather than overt emotionality.

Such restrained messaging has a long tradition in public communication, where credibility appeals and facts are often considered more professional and legitimate. However, behavioral research consistently shows that even subtle emotions play an indispensable role in shaping decisions (Holbrook & Batra, 1987; Lerner et al., 2015). Campaigns in this cluster may therefore rely on implicit emotional cues — such as tone, imagery, or narrative structure — rather than explicit emotional appeals.

Their dominance in the dataset suggests that award committees privilege restraint and credibility. These campaigns appear designed to avoid charges of manipulation, favoring a “cool” style of persuasion that nevertheless embeds affect in quieter ways.

3.2.3.4.3 CLUSTER 3 – BALANCED EMOTIONAL APPEALS (42.1%)

Cluster 3 (n = 75; 42.1%) occupies a middle ground, with moderate levels of both positive and negative emotions. The cluster shows higher trust and joy than Cluster 2, but also stronger fear and sadness, though not to the extreme seen in Cluster 1. This configuration reflects a balanced approach that acknowledges environmental risks while maintaining optimism and efficacy.

Theoretically, this balance resonates with regulatory focus theory (Higgins, 1997, 1998; Zhao & Pechmann, 2007), which distinguishes promotion-oriented appeals (focused on gains and opportunities) from prevention-oriented appeals (focused on risks and responsibilities). By blending positive and negative tones and a moderate level, Cluster 3 campaigns appeal to both motivational orientations, increasing the likelihood of resonance across heterogeneous audiences. Cesario et al. (2004) argue that persuasion is strongest when messages create a sense of “fit” with audience focus. Balanced campaigns achieve this by offering both urgency and reassurance.

Empirical studies on climate change communication confirm that such mixed appeals are effective. Feldman and Hart (2018) and Nabi et al. (2018) find that messages combining threat information with solution-oriented efficacy are more likely to mobilize

advocacy than either optimism-only or fear-only framings. Cluster 3 campaigns embody this logic, leveraging constructive concern to sustain engagement.

All in all, the results show that sustainability campaigns are strategically differentiated by how strongly they use emotion rather than by which emotions they deploy. Positive framing dominates muted campaigns, balanced campaigns integrate optimism with concern, and high-intensity campaigns attempt to activate audiences through saturation.

This clustering contributes to ongoing debates in sustainability communication over whether to foreground threats or solutions (O'Neill & Nicholson-Cole, 2009). The evidence suggests that both approaches retain utility but are institutionalized differently: muted campaigns dominate award recognition, balanced campaigns serve as a versatile alternative, and high-intensity campaigns remain rare but attention-grabbing.

This analysis clarifies that campaigns do not simply “add emotion” but strategically calibrate its intensity to achieve different rhetorical aims. Emotion thus emerges as a structuring dimension of sustainability marketing, shaping not only audience responses but also institutional judgments of campaign effectiveness.

3.2.3.5 EMOTIONAL PROFILES AND AFFECTIVE INTENSITY

3.2.3.5.1 EMOTION SCORES

The application of the NRC Emotion Lexicon (Mohammad, 2023; Mohammad & Turney, 2013) revealed a corpus characterized by a strong positive valence. Across all

campaign transcripts, the lexicon identified 2,770 positive tokens versus 1,038 negative tokens, indicating that award-winning sustainability campaigns tend overwhelmingly toward affirmative and encouraging framings. This polarity profile suggests that campaign discourse is designed to foster optimism and constructive engagement rather than adversarial or condemnatory tones, consistent with prior research on effective climate communication (O'Neill & Nicholson-Cole, 2009).

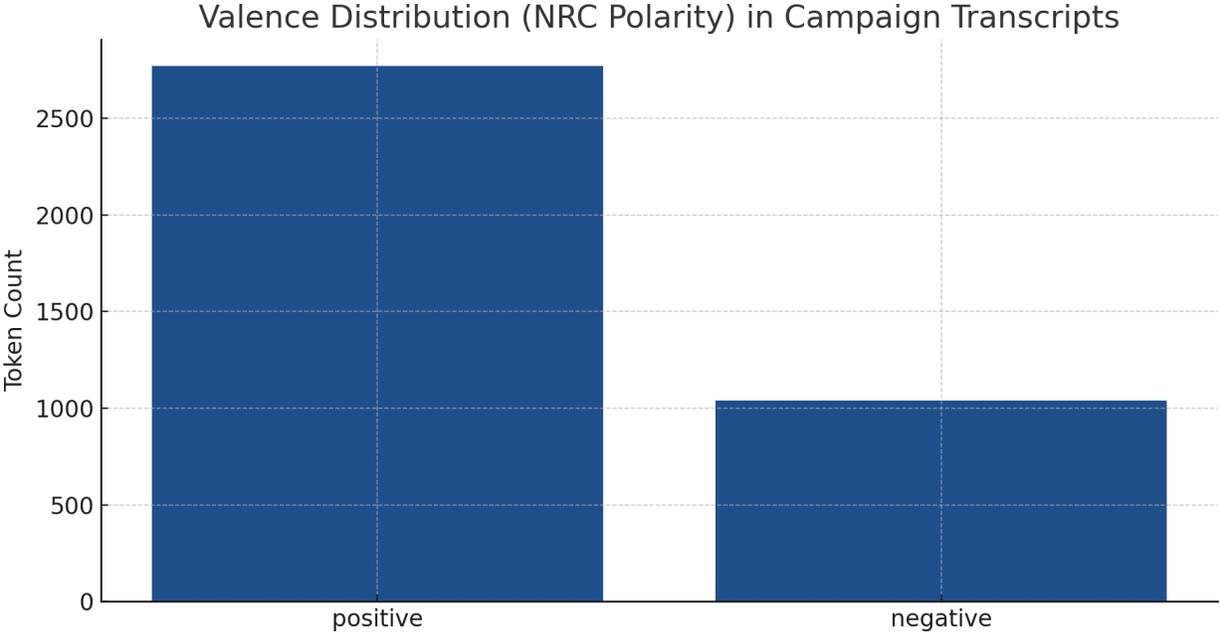


Figure 61 Valence Distribution (NRC Polarity) in Campaign Transcripts

Within the eight discrete emotion categories, the results further demonstrate the predominance of trust (1,538 tokens), anticipation (1,109 tokens), joy (1,070 tokens), and surprise (441 tokens), together accounting for more than half of all emotion-laden terms. The centrality of trust reflects campaigns' emphasis on credibility, reliability, and collective responsibility. Anticipation, as the second most frequent discrete emotion,

underscores a forward-looking orientation that situates sustainable action within long-term societal trajectories, while joy conveys optimism, enthusiasm, and solidarity. Finally, surprise emerges intermittently throughout the campaigns, often invoked to challenge expectations, highlight innovative approaches, or emphasize unexpected solutions to sustainability challenges. These patterns are consistent with persuasive strategies that seek to inspire confidence in collective action while generating positive emotional engagement (Berger & Milkman, 2012; Nabi, 2015).

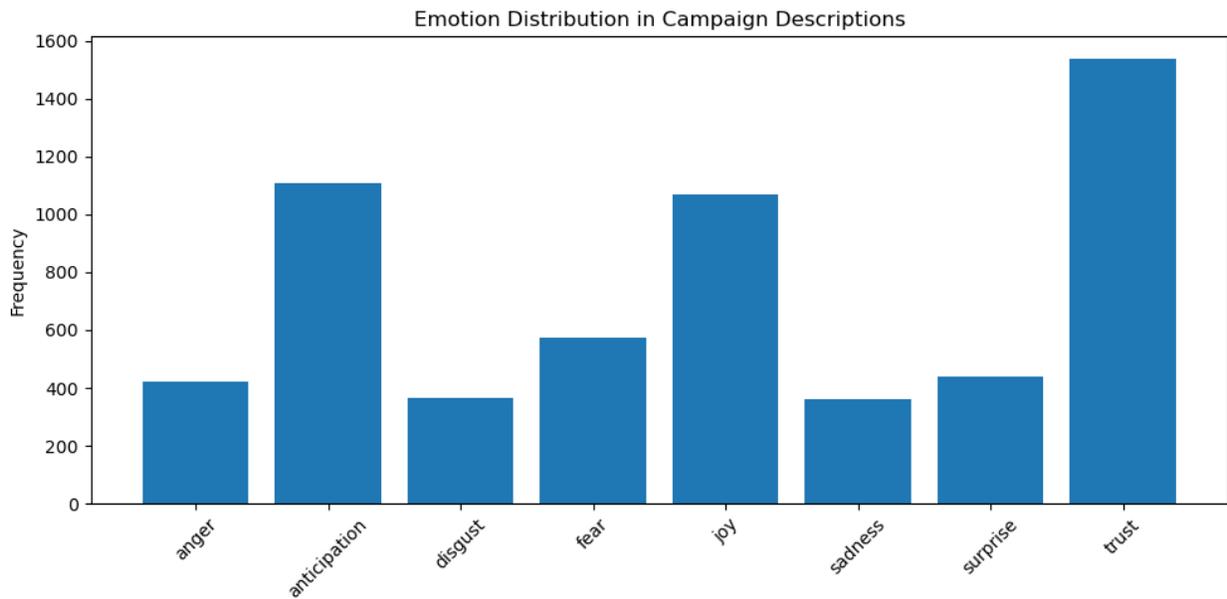


Figure 62 Distribution of NRC Eight Emotions in Campaign Transcripts

At the same time, the corpus reveals a non-negligible presence of emergency-related emotions. Fear (576 tokens), though less frequent, highlights the catastrophic risks of inaction and appears to be strategically deployed in a subset of campaigns. Anger (423 tokens) is used to underscore perceived injustices or urgent threats to sustainability, often serving as a catalyst for mobilization and advocacy. Disgust (365 tokens) emerges

primarily in contexts where campaigns confront harmful practices or environmental degradation, invoking a visceral response that reinforces calls for change. Sadness (361 tokens) is typically employed to evoke empathy and reflection, drawing attention to loss or damage resulting from unsustainable behaviors.

Importantly, while a small number of campaigns rely heavily on negative emotions, the majority maintain a positive emotional profile. The rarity of anger, disgust, and sadness indicates a deliberate avoidance of moral condemnation or adversarial tones, which could risk reputational harm or audience alienation (Chapman et al., 2017). Similarly, sadness plays only a marginal role, suggesting that appeals to grief or loss are secondary to more solution-oriented and optimistic messaging strategies. This pattern aligns with the Extended Parallel Process Model, which suggests that fear appeals are most effective when coupled with strong efficacy cues (Witte & Allen, 2000).

Complementing these frequency results, emotional density analyses revealed significant heterogeneity across campaigns. While the median campaign contained only a modest proportion of affective vocabulary, a long-tailed distribution was evident, with a subset of campaigns exhibiting exceptionally high emotional density—sometimes exceeding 20% of total tokens. These campaigns prioritize affective resonance over informational content, while others adopt more restrained registers with emotion embedded within descriptive or technical discourse.

Overall, these findings suggest that award-winning campaigns rely on a dual affective repertoire: positive emotions (trust, joy) are used to inspire optimism and collective confidence, while selective deployment of anticipation and fear introduces a sense of urgency. Negative moral emotions remain rare, reflecting a strategic preference for uplifting, efficacy-oriented communication in sustainability discourse.

3.2.3.5.2 EMOTIONAL DENSITY

The distribution of emotional density—defined as the proportion of tokens in each campaign transcript associated with an emotion category—demonstrates significant variability across the corpus. As shown in Figure 63, the distribution approximates a unimodal curve centered around a median of 0.20, with the interquartile range spanning from 0.17 to 0.25. This suggests that the typical campaign allocates one-fifth of its vocabulary to explicitly affective terms, balancing emotional resonance with informational or descriptive content.

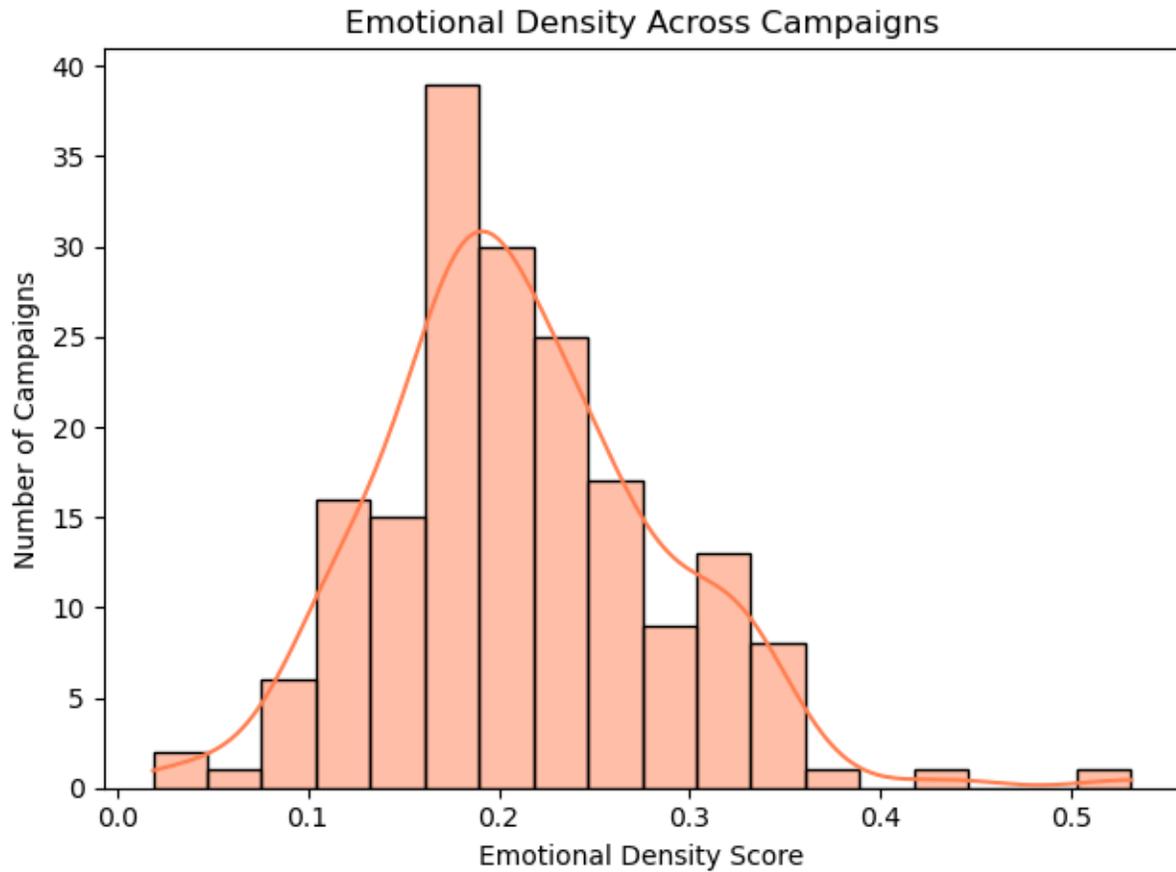


Figure 63 Emotional Density across Campaigns

At the lower bound, campaigns such as “Small Cans, Big Impact” and “Vodafone, Home of Trade In” exhibit density scores below 0.05, indicating a near absence of affective vocabulary. These cases reflect an informational register, where emotional language is minimized, in favor of product-specific or technical communication.

At the upper bound, a small number of campaigns rely on exceptionally high emotional density, with the maximum reaching 0.53 (“Sabor Bajo el Mar”). Others, such as “Unplug Denmark” and “Selfless Shelves,” also exceed 0.35, indicating that over one-third of all tokens are emotion-laden. These high-density cases suggest a rhetorical

strategy of affective saturation, in which campaigns prioritize emotional resonance—whether through appeals to love, community, or urgency—at the expense of neutral or descriptive phrasing.

The long-tailed nature of the distribution underscores the heterogeneity of award-winning sustainability discourse. While most campaigns cluster around moderate emotional density, a subset employs either exceptionally low or remarkably high affective language, demonstrating two divergent rhetorical strategies:

- Emotionally restrained campaigns: privileging factual, technical, or descriptive registers.
- Emotionally saturated campaigns: foregrounding affective vocabulary as the dominant rhetorical mode.

This divergence highlights the coexistence of different persuasive logics within sustainability marketing. Some campaigns rely on credibility and rational argumentation, while others pursue emotional immersion to drive engagement. Importantly, the recognition of both styles within award competitions suggests that effectiveness is not tied to a single emotional formula, but rather that campaigns may achieve success through varied balances of affect and information (Chapman et al., 2017; Nabi, 2015).

3.2.3.5.3 EMOTION DISTRIBUTION BY AWARD

The comparative analysis of emotion distributions across award categories reveals a consistent predominance of positive affective states, notably trust and anticipation. This

trend is particularly evident in the Effie Awards, where trust (633) and anticipation (467) occur with the highest frequency across all categories. The prominence of trust reflects its foundational role in sustainability communications. Trust not only signals reliability and competence but also legitimizes organizational claims regarding sustainable practices (Delgado-Ballester & Luis Munuera-Alemán, 2001). In this respect, trust operates as a proxy for credibility, reducing perceived risk and thereby fostering receptivity among audiences confronted with the often complex and uncertain domain of sustainability.

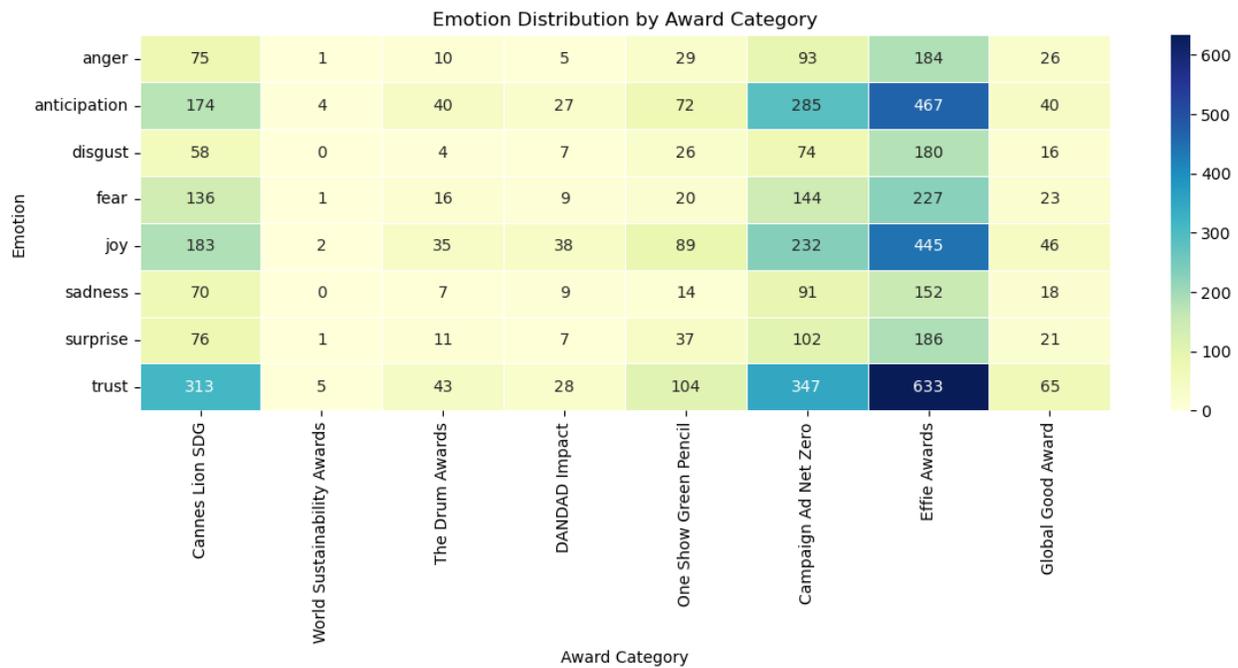


Figure 64 Emotion Distribution by Award Category

Anticipation, the second most salient emotion, functions as a forward-looking affective mechanism. Psychological research demonstrates that anticipatory emotions such as hope, curiosity, and excitement enhance individuals' openness to adopt new behaviors by engaging reward-oriented cognitive processes (Baumeister et al., 2007).

Within the domain of awards for sustainability marketing campaigns by businesses, campaigns are often framed around visions of a better future—whether through renewable energy, circular consumption, or systemic transformation. This explains why awards such as Campaign Ad Net Zero (anticipation = 285) privilege anticipation as a strategic communicative tool. By emphasizing anticipation, campaigns mobilize aspirational thinking and encourage consumers to align themselves with transformative trajectories.

While negative affective states such as anger and disgust are present, their frequency is lower. This finding indicates that most award-winning campaigns refrain from over-relying on negative appeals, such as fear-based or shock-inducing strategies. This is consistent with prior studies which caution that guilt and fear appeals in sustainability messaging may backfire by eliciting defensive resistance or avoidance behaviors (Agrawal & Duhachek, 2010; Hibbert et al., 2007; Weinstein, 1980). The Cannes Lion SDG awards, however, show a balanced emotional profile, combining fear (136), anger (75), and joy (183). This balanced strategy may reflect an intentional use of dual emotional appeals: emphasizing urgency while simultaneously fostering hope and joy (Nabi, 2015).

In sum, the emotion distribution data supports the conclusion that award-winning campaigns in sustainability prioritize positive, future-oriented emotions. Trust builds a foundation of credibility, while anticipation generates motivational momentum.

Negative emotions, although present, appear to be carefully moderated and strategically integrated into broader positive narratives.

3.2.3.5.4 DOMINANT EMOTIONS AT THE CAMPAIGN LEVEL

The campaign-level analysis further substantiates the centrality of trust as the dominant emotional register. Campaigns such as “The Move to -15” and “Contrails” highlight systemic transformations (e.g., energy transitions, aviation sustainability) and explicitly frame their narratives around reliability and responsibility. These examples reveal how trust is not simply evoked rhetorically but is embedded in the technical and institutional credibility of the solutions being presented. By positioning sustainability as both scientifically grounded and institutionally supported, these campaigns extend beyond short-term persuasion to cultivate long-term reputational legitimacy (Sirdeshmukh et al., 2002).

Anticipation also surfaces as a key dominant emotion in campaigns that emphasize technological innovation and future readiness. For instance, “Filter Caps” deploys anticipation to highlight the promise of innovation in environmental remediation. Such framing aligns with evidence that anticipatory appeals stimulate proactive thinking, making individuals more receptive to adopting sustainable behaviors and policies (Chang, 2011).

The relative absence of negative dominant emotions at the campaign level suggests that award-winning campaigns intentionally foreground optimism and

credibility over fear or despair. This is in line with framing theory, which argues that message framing significantly shapes public interpretation of social issues (Pan & Kosicki, 1993; Snow & Benford, 1988). In sustainability contexts, where long-term commitment is essential, overreliance on fear risks disengagement, while positive framing is more likely to sustain engagement.

3.2.3.5.5 POLARITY-POSITIVITY RELATIONSHIPS

The relationship between polarity scores (TextBlob) and NRC positivity counts provides a complementary perspective on how campaigns linguistically balance affect. The majority of texts cluster around neutral to mildly positive polarity values (0.0–0.3). This clustering indicates that sustainability campaigns avoid extremes of positivity or negativity, favoring a moderate, credible tone. Campaigns that register both positive polarity and higher counts of NRC positive words exemplify a deliberate blending of affective positivity with semantic reinforcement.

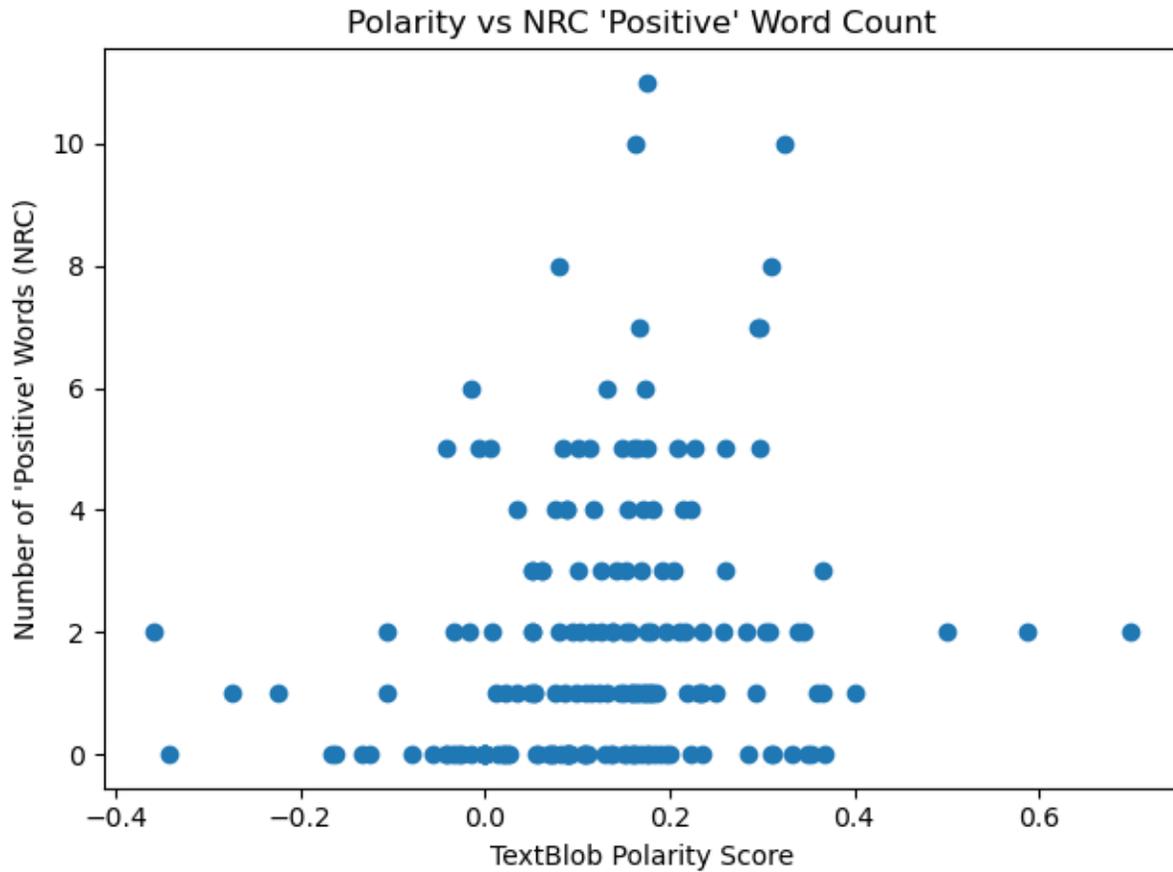


Figure 65 Polarity vs NRC Positive Words Count

Importantly, only a small proportion of campaigns occupy the negative polarity spectrum (-0.4 to -0.1). These texts typically score low on NRC positive word counts, suggesting that when negativity is employed, it is not counterbalanced with positive vocabulary. This pattern illustrates a segmented strategy: most campaigns rely on constructive optimism, while a minority leverage negativity for urgency. However, excessive negativity risks diminishing persuasion by reducing trust and engagement (Chang, 2011).

The preference for mild positivity reflects the emotional flow hypothesis, which posits that effective persuasion arises not from singular emotional states but from sequences of emotions that guide audiences from problem recognition toward solution adoption (Nabi, 2015). In this regard, therefore, award-winning marketing campaigns for sustainability appear to deploy neutral or mildly positive tones as the emotional “base” upon which more targeted appeals (e.g., urgency, hope, trust) can be layered.

The emotion distribution, dominant campaign emotions, and polarity–positivity findings highlight a coherent strategy in award-winning sustainability campaigns:

1. Reliance on Positive Affect: Trust and anticipation dominate, underscoring the importance of optimism and credibility.
2. Moderation of Negativity: Negative emotions are strategically present but not overemphasized.
3. Balanced Polarity: Campaigns favor mild positivity and avoid extremes, reflecting a calculated balance between inspiration and realism.

This strategic orchestration of emotions aligns with broader theories of sustainable consumer behavior change, which stress that affective engagement must be coupled with credible information to drive long-term adoption (Chang, 2011). Award-winning campaigns thus provide evidence of best practice in combining affective appeal with institutional credibility to cultivate sustainable consumer engagement.

3.2.3.6 AGGREGATED TEMPORAL DYNAMICS OF EMOTION

When aggregated by year, raw counts of emotion words unsurprisingly increased as the dataset expanded, and more campaigns entered the corpus of marketing for sustainability (cf. Figure 66). For example, trust rose from 26 in 2010 to over 450 by 2024, while anticipation increased from twenty-four to 380 in the same period. Joy and fear also showed sharp upward trajectories, particularly after 2018. These raw counts reflect both genuine discursive shifts and the growing volume of campaign material available for analysis.

However, raw counts alone are insufficient because they conflate dataset size with rhetorical change. To capture genuine shifts in discourse, emotion frequencies were normalized by the number of campaigns per year (cf. Figure 67). These normalized profiles reveal more subtle and meaningful dynamics.

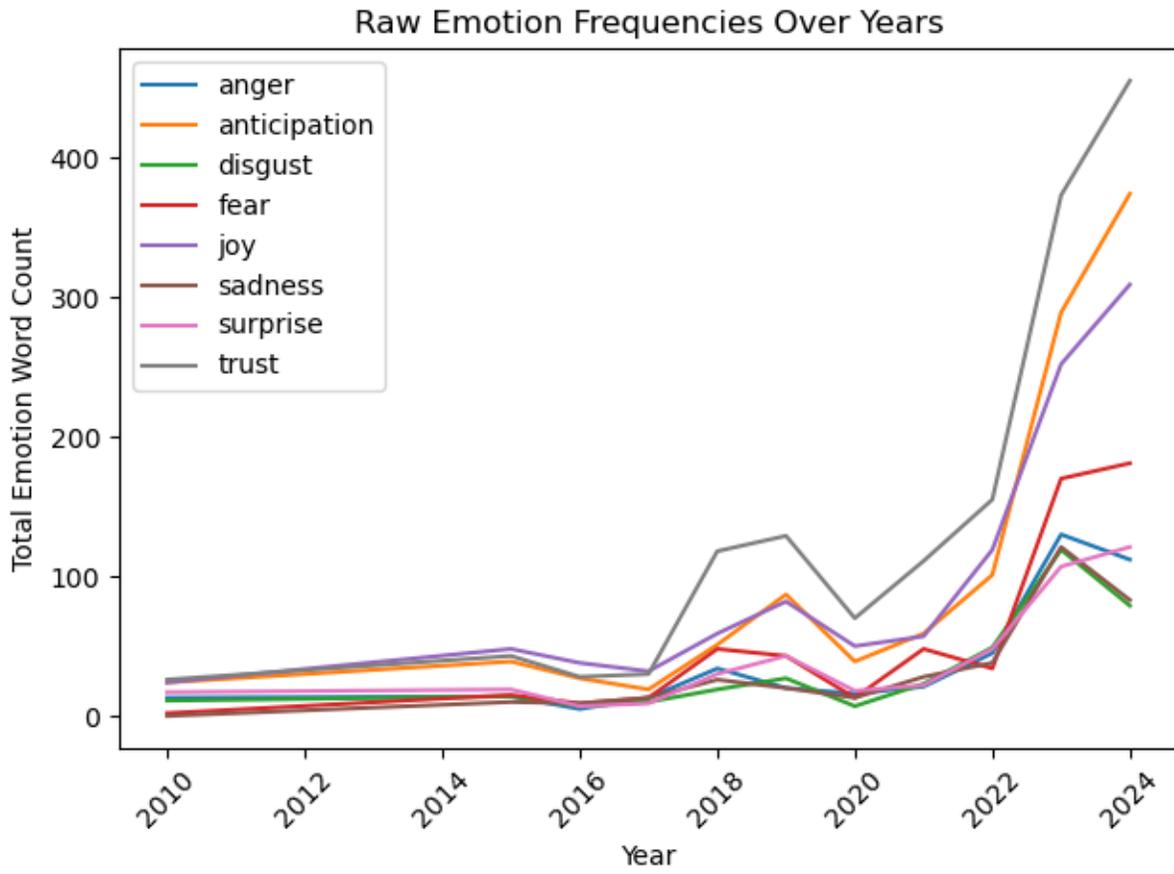


Figure 66 Raw Emotion Frequencies over the Years

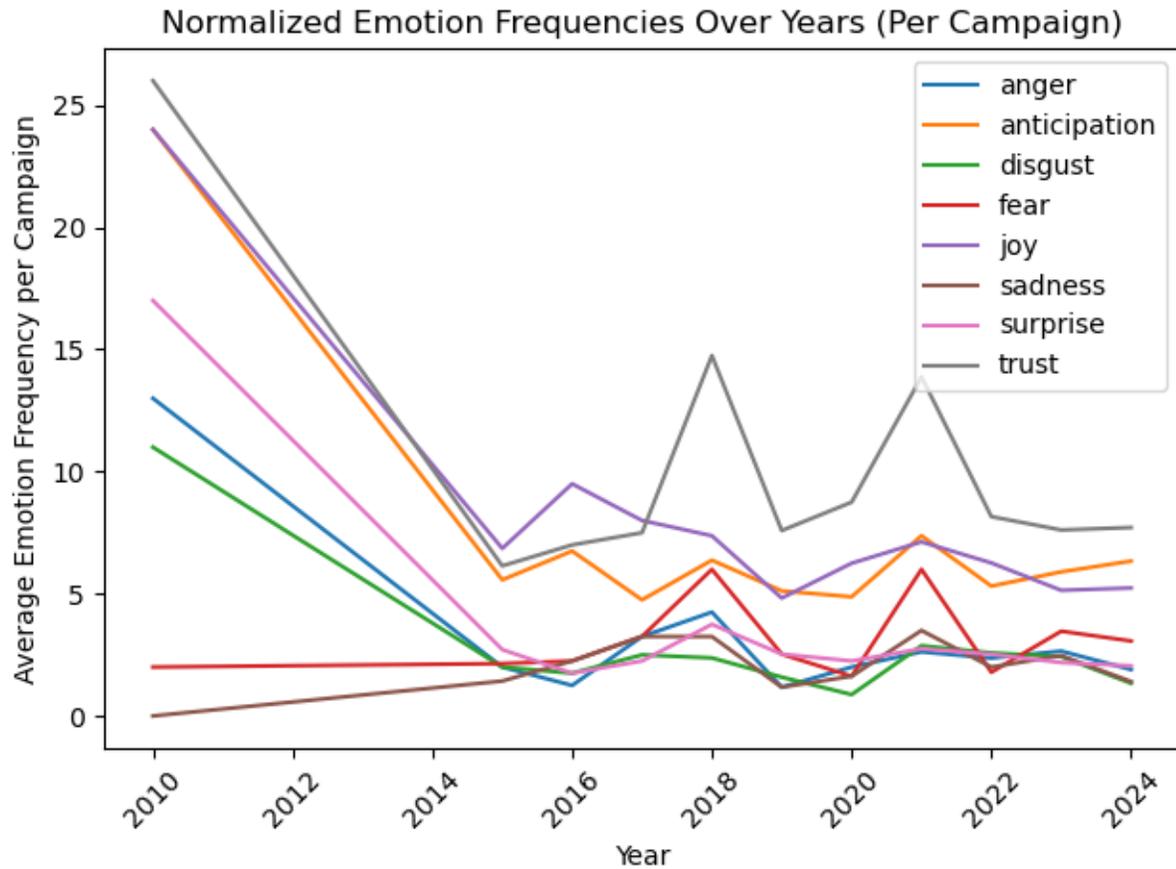


Figure 67 Normalized Emotion Frequencies Over the Years (Per Campaign)

3.2.3.6.1 STABLE FOUNDATIONS: TRUST AND JOY

Across the entire period, trust and joy consistently served as the baseline emotions of sustainability communication. Even when normalized, trust remained one of the most frequently invoked emotions, averaging around 6–15 mentions per campaign in most years. This aligns with appraisal research emphasizing trust as a foundation for credibility, cooperation, and relational stability in persuasive messaging (Smith & Ellsworth, 1985). Joy similarly remained steady, reflecting campaigns’ long-term reliance on positive emotions to frame sustainability as hopeful and rewarding. The stability of

these emotions is consistent with the broaden-and-build theory (Fredrickson, 2001), which suggests that positivity expands audiences' willingness to engage and invest in collective projects and positively affect marketing awards judges' receptions.

3.2.3.6.2 FLUCTUATING SIGNALS OF URGENCY

By contrast, anticipation and fear showed marked fluctuations across the period. For example, normalized anticipation peaked in 2018 and again after 2021, while fear rose sharply during the same periods. These surges coincide with heightened moments of global environmental salience, including high-profile COP summits, the Paris Agreement implementation phase, and waves of international climate protests (e.g., Fridays for Future) (Wallis & Loy, 2021).

This pattern reflects a strategic adaptation of campaign repertoires: urgency-oriented emotions are selectively amplified when public concern about climate change is elevated. Prospect theory (Kahneman & Tversky, 1979) suggests that highlighting potential losses increases salience, while regulatory focus theory (Higgins, 1997) indicates that prevention-oriented emotions (fear, anxiety) become especially persuasive when risks are perceived as imminent. These frameworks help explain why campaigns intensify urgency at specific historical moments.

3.2.3.6.3 SECONDARY EMOTIONS AND EPISODIC VARIATION

Other discrete emotions, such as anger, sadness, disgust, and surprise, displayed smaller but noticeable temporal fluctuations. For instance, anger and sadness both spiked

in the years surrounding 2018–2019, suggesting rhetorical responses to politically charged events (e.g., climate policy changes, protests). Surprise, while less frequent overall, appeared in early years as a novelty-inducing device but declined as sustainability discourse matured.

These episodic patterns indicate that award-winning marketing campaigns for sustainability deploy a wider emotional palette in response to specific socio-political triggers, but do not maintain such strategies consistently over time. This reinforces the notion that trust, and joy are longitudinally structural baselines, while other emotions function as context-dependent amplifiers.

Overall, this analysis demonstrates that award winning sustainability campaigns strategically calibrate emotional intensity over time. Positive emotions of trust and joy form the stable core of the discourse, cultivating credibility and hope. Meanwhile, urgency-oriented emotions such as anticipation and fear rise and fall in synchrony with global events, signaling adaptive responsiveness to shifts in public reception.

This supports broader research showing that fear-based or urgency appeals are most effective when paired with efficacy and solution framing (Feldman & Hart, 2018; Nabi et al., 2018; Witte, 1992). Award-winning campaigns follow this logic: rather than abandoning optimism, they layer urgency onto a foundation of trust and joy during moments of environmental crisis.

3.2.3.7 SENTIMENT VALIDATION OF AWARD-WINNING CAMPAIGN DESCRIPTIONS

The corpus comprises 184 cleaned campaign descriptions. Each description was scored by four sentiment instruments that operationalize “sentiment” in diverse ways.

3.2.3.7.1 TEXTBLOB

TextBlob returns two values for each text: polarity, a number between -1 and $+1$ that indicates how negative or positive the wording is, and subjectivity, a number between 0 and 1 that indicates how factual (near 0) or opinion-like/persuasive (near 1) the language is (De Smedt & Daelemans, 2012). In our data, polarity has a mean of 0.128 and a median of 0.134 , with 13% of descriptions below zero. Put plainly, the center of the distribution sits a bit on the positive side, while a modest share of texts leans negative. This is the shape shown in Figure 68, where the histogram and the kernel density together display a gentle positive skew.

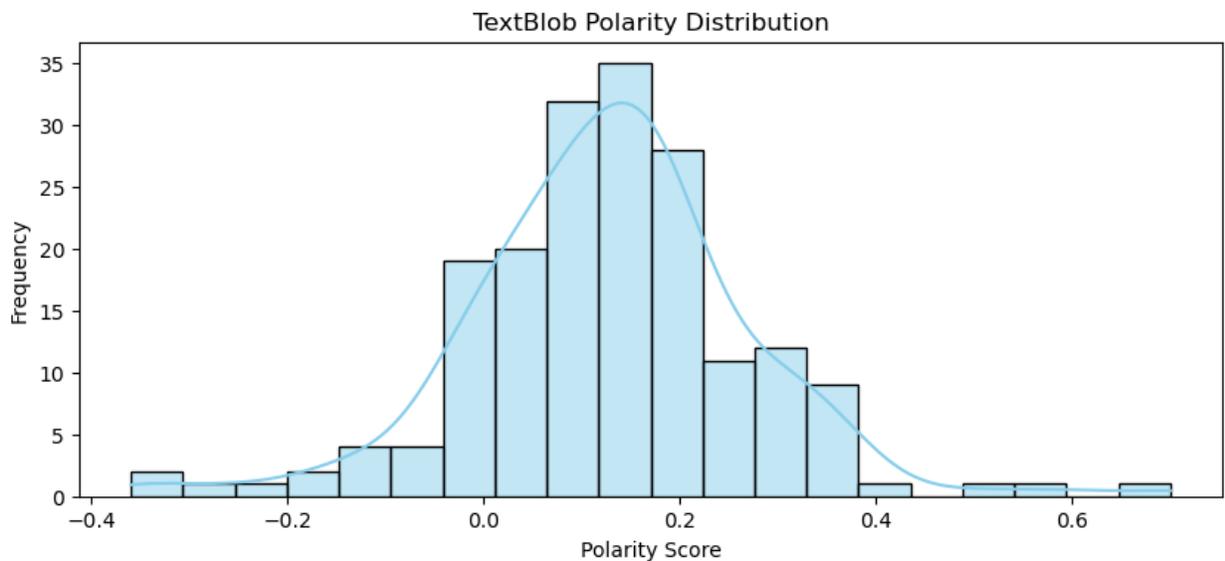


Figure 68 TextBlob Polarity Distribution

3.2.3.7.2 VADER

VADER (Valence Aware Dictionary and sEntiment Reasoner) is a rule-augmented lexicon designed for short, punchy text (Hutto & Gilbert, 2014). It produces a single compound score between -1 and $+1$. Unlike a simple word list, VADER uses rules for negation (“not good”), intensifiers and dampeners (“really good,” “slightly bad”), and even capitalization or exclamation marks, all of which can strengthen or weaken the perceived tone of a sentence. In this analysis, the compound score has a mean of 0.729 and a median of 0.948 , with 8.7% of descriptions below zero. Figure 69 evidences a pronounced left skew with mass approaching $+1.0$ and a discrete negative mode corresponding to explicit prohibitions or negations (e.g., “not sustainable”, “stop destroying”)—precisely the phenomena VADER is designed to capture.

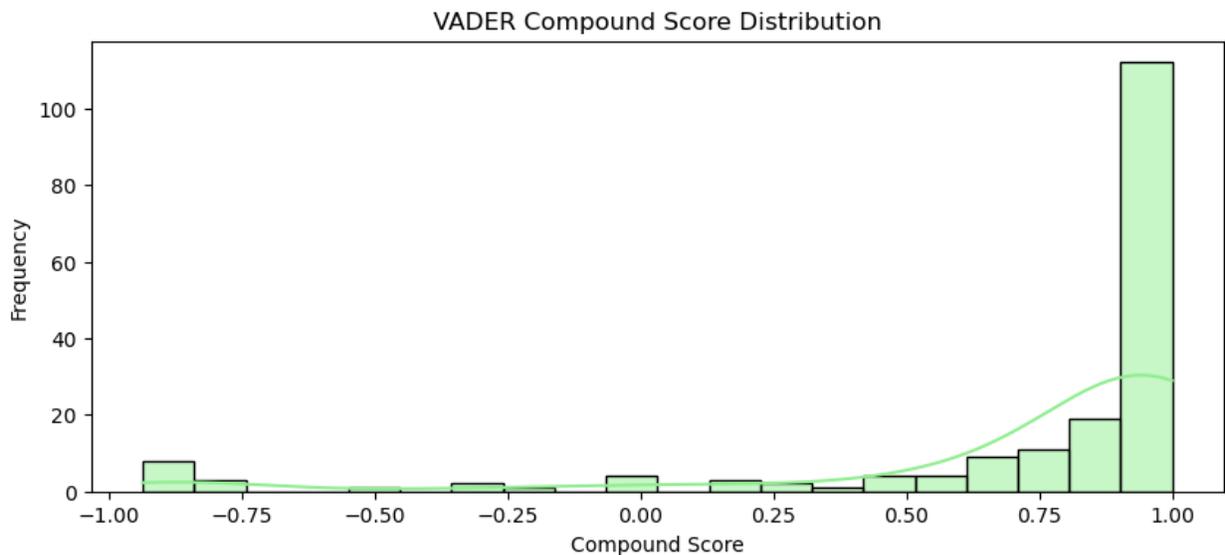


Figure 69 VADER Compound Score Distribution

3.2.3.7.3 AFINN

Afinn is a straightforward additive lexicon: each word has an integer sentiment value (e.g., “excellent” = +3; “terrible” = -3), and a text’s score is simply the sum of its words (Nielsen, 2011; Taboada et al., 2011), hence unbounded in principle. Therefore, for cross-instrument comparability, scores were max-absolute normalized to [-1,1]. In the raw Afinn scores, the range is -18 to 104 with a mean of 13.46. After max-absolute normalization, the mean is 0.129, the median is 0.096, and 11.4% of descriptions are negative. Figure 70 shows the characteristic long right tail of the additive method when positive tokens occur frequently across a text.

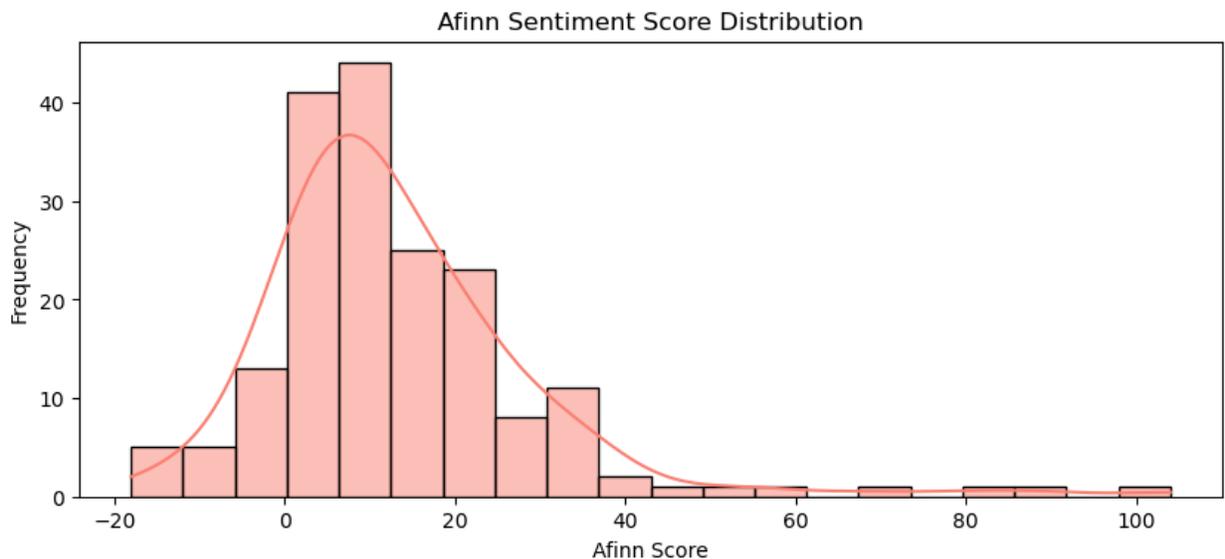


Figure 70 Afinn Sentiment Score Distribution

3.2.3.7.4 BERT

The transformer-based method uses DistilBERT, a compact version of BERT, fine-tuned on SST-2 (a benchmark of short movie-review sentences) to classify texts as

POSITIVE or NEGATIVE and to return a confidence p between 0 and 1 (Devlin et al., 2018; Sanh et al., 2020; Wolf et al., 2020). Transformers model the context around each word rather than looking up words individually, which means they can be sensitive to how statements are combined across a passage. Here, the label counts are NEGATIVE = 122 (66.3%) and POSITIVE = 62 (33.7%), and the mean confidence is 0.941 overall (NEGATIVE cases average 0.948, POSITIVE 0.927). Figure 71 and Figure 72 display, respectively, the tight clustering of confidence near 1.0 and the 2:1 ratio of NEGATIVE to POSITIVE classifications.

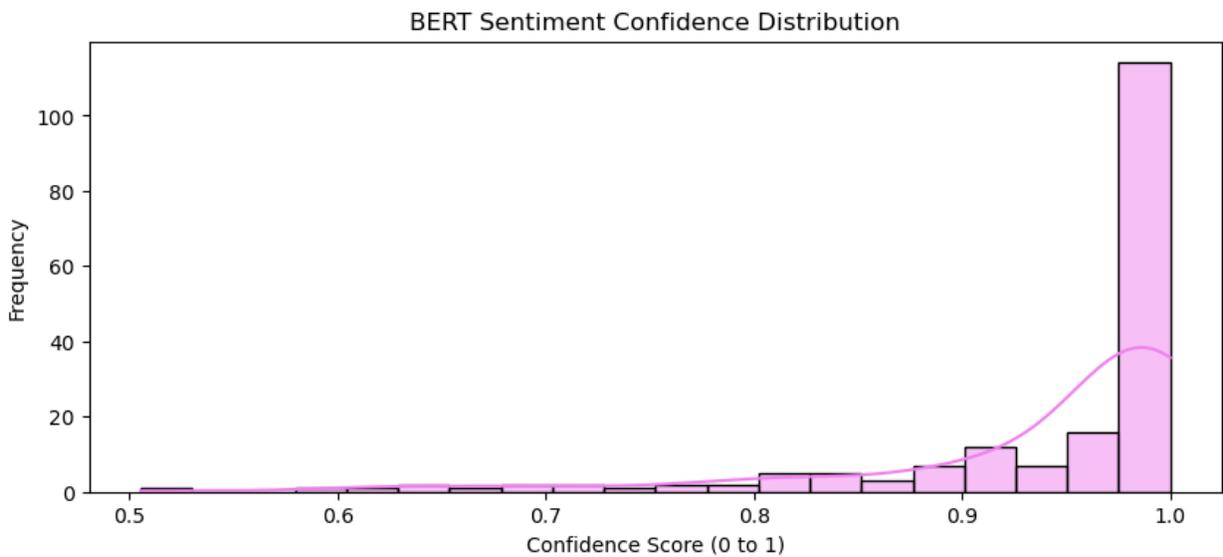


Figure 71 BERT Sentiment Confidence Distribution

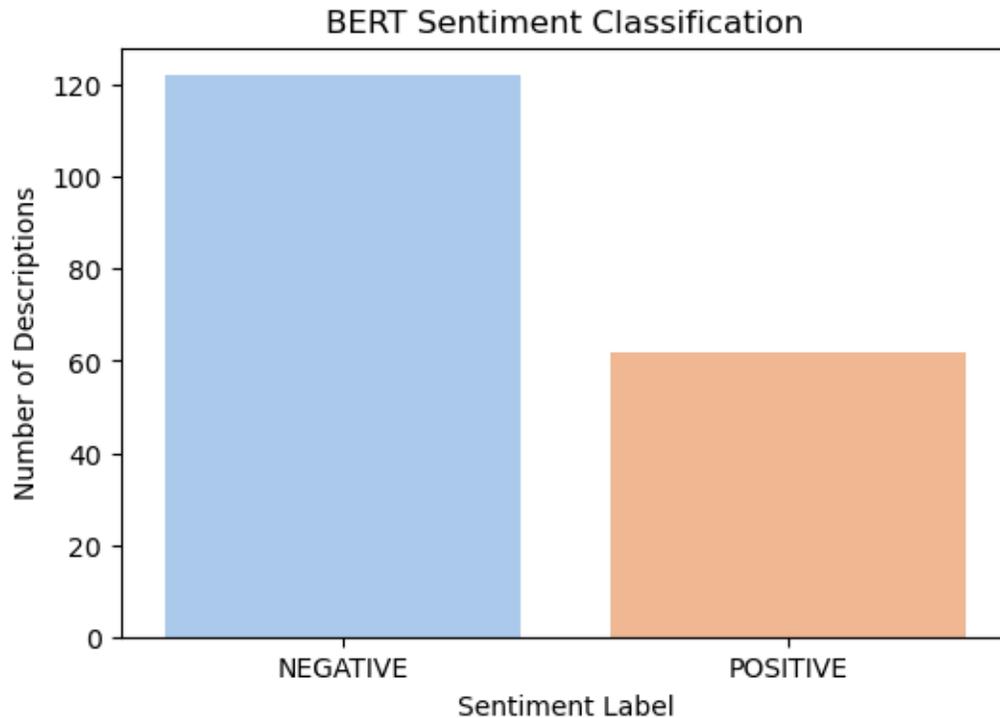


Figure 72 BERT Sentiment Classification

3.2.3.7.5 VIOLIN PLOT FOR COMPARISON

For comparison, a side-by-side violin plot is constructed (cf. Figure 73). Here, the transformer's outputs are placed on the same axis as the other tools by assigning +p to POSITIVE and -p to NEGATIVE. On this shared axis the transformer's distribution centers below zero, whereas TextBlob, VADER, and normalized AFINN all center above zero.

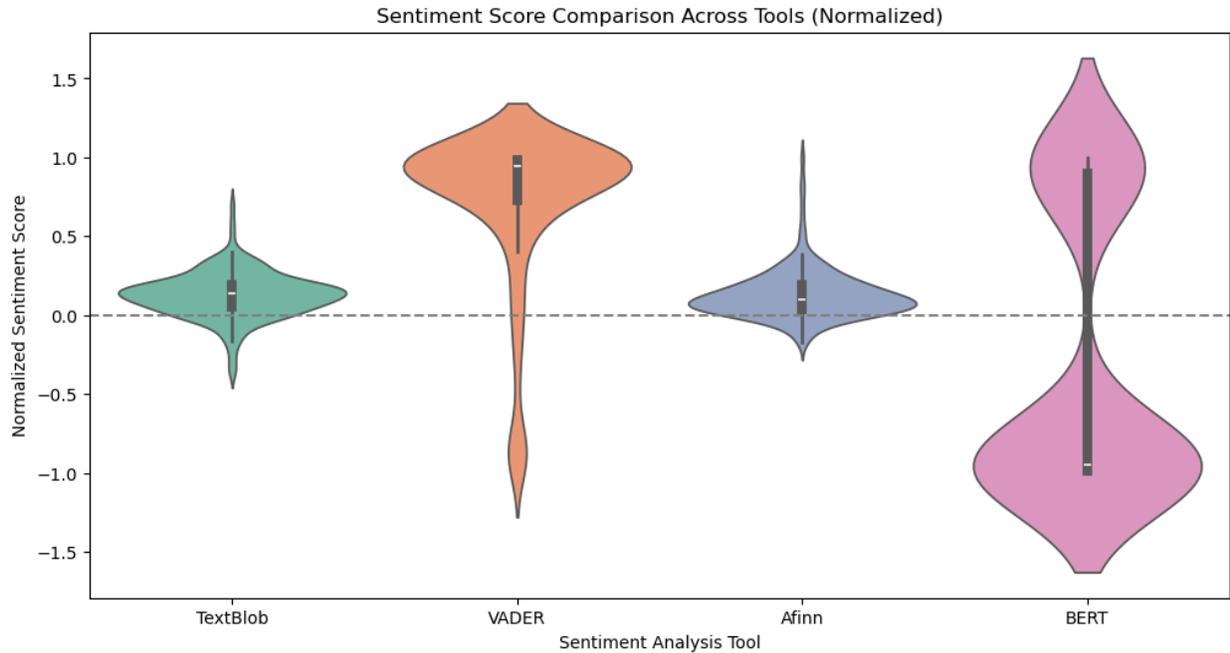


Figure 73 Sentiment Score Comparison Across Tools (Normalized)

The violin plot should be read as a comparative display of distributional shape and location rather than as four instruments operating on a common, substantively identical scale. Each violin shows where scores concentrate relative to the neutral line at zero and how widely they disperse. Afinn values have been rescaled post hoc to the interval $[-1, 1]$ for visual comparability, so its magnitudes are not directly commensurate with the native scales of the other tools. VADER’s distribution reflects its rule sensitivity to polarity shifters—especially negation and degree modification—so phrases such as “not good” or “really good” can produce sharp movements in either direction (Hutto & Gilbert, 2014). By contrast, the BERT trace represents signed confidence in a categorical decision (positive coded as $+p$, negative as $-p$), and therefore should not be interpreted

as a continuous, in-domain valence metric produced from sustainability copy (Devlin et al., 2018; Sanh et al., 2020; Wolf et al., 2020).

With those measurement properties in view, the cross-tool pattern is coherent. TextBlob, VADER, and Afinn cluster above zero because word-based and rule-augmented lexicons are highly responsive to solution-oriented vocabulary that pervades campaign wordings—terms such as “sustainable”, “renewable”, “protect”, “solution”, and “together”—yielding a positively centered distribution (De Smedt & Daelemans, 2012; Nielsen, 2011; Taboada et al., 2011). The BERT distribution, in contrast, appears polarized and slightly negative-leaning because a contextual classifier integrates the semantics of clauses and often encounters descriptions that narrate the problem first and the remedy later; in such cases, especially under the model’s 512-token truncation, the early problem framing can dominate the decision boundary and produce high-confidence negative labels even when the overall stance is positive (Devlin et al., 2018; Mohammad, 2016; Sanh et al., 2020). The divergence is therefore informative rather than anomalous: it indicates a discourse that combines a positive lexical surface with a problem-focused contextual frame, consistent with a strategy that pairs efficacy and hope with the communication of risk.

In other words, the empirical record is unambiguous: the three lexicon/rule-based instruments cluster on the positive side with small negative subsets, and the transformer yields many more negative assessments even while being highly confident.

3.2.3.7.6 SENTIMENT VALIDATION DISCUSSION

The combined pattern across instruments indicates that the corpus exhibits a two-tier affective profile. On the first tier lies what can be called lexical positivity. Because much campaign language leans on solution-oriented words— “sustainable,” “renewable,” “protect,” “better,” “solution,” “together”—methods that score texts by counting and weighting words (TextBlob; VADER; AFINN) naturally register a positive center. This observation matches the emotional results reported previously, which found stable contributions from trust and joy, and it aligns with psychological accounts in which positive feelings broaden people’s thinking and help them build social and cognitive resources for action (Fredrickson, 2001).

On the second tier, the BERT transformer exposes a complementary signal of contextual negativity. This does not mean the campaigns oppose sustainability. Rather, it reflects how context-sensitive models evaluate how clauses are arranged within a passage. Award-winning marketing campaigns for sustainability descriptions often foreground environmental harms—plastic waste, climate risks, damage to ecosystems—before they pivot to the proposed solution. Because the DistilBERT model used here was fine-tuned on short, review-style sentences, long descriptions that allocate early space to the problem can be evaluated as negative overall, especially when inputs are truncated at 512 tokens (the model’s limit) and the solution language appears later in the text

(Devlin et al., 2018; Sanh et al., 2020; Wolf et al., 2020). Two standard terms help clarify this behavior.

Placed within the communication literature, the coexistence of lexical positivity and contextual negativity is not only plausible but predicted. Persuasive messages about environmental issues work best when threat information (which raises perceived risk) is paired with efficacy and hope (which shows that action is possible and worthwhile). Fear-only approaches can backfire by prompting avoidance; optimism-only approaches can under-motivate action because they fail to convey why action matters now (Feldman & Hart, 2018; Nabi et al., 2018; O'Neill & Nicholson-Cole, 2009; Witte & Allen, 2000). The corpus under study appears to embody this balance. The lexicon methods pick up the hopeful, solution-forward surface, while the transformer picks up the urgency layer created when texts narrate harms and risks. The previous temporal analyses—which showed that urgency (especially fear/anticipation) is selectively amplified in high-salience years—are consistent with this two-tier architecture of affect.

3.3 DISCUSSIONS & CONCLUSION

The results presented in this chapter extend theory and practice in sustainable consumption communication by demonstrating, with empirical specificity, how award-winning brand campaigns orchestrate social influence, market re-design, behavioral frictions, and participatory practices in patterned configurations, and by clarifying the language, affect, and responsibility frames that accompany those configurations across a

heterogeneous corpus. The analytic pipeline—combining automated scraping of award repositories, audiovisual capture, transcription and normalization, and a hybrid abductive coding architecture—provides a basis for triangulation with the SLR in Chapter 2, while establishing clear links to the audience-side diagnostics that structure Chapter 4. The pipeline integrated *yt-dlp*, *FFmpeg*, and *Whisper*; applied spelling correction and language normalization; and removed instances where intelligible text could not be recovered, yielding a clean dataset suitable for natural language processing and qualitative coding. The chapter addressed five research questions: mapping theoretically grounded interventions to real campaigns (RQ1); the emotional strategies that co-occur with heightened persuasion potential (according to industry experts via awards) (RQ2); the linguistic and framing patterns that differentiate campaigns (RQ3); the assignment of agency to individuals, firms, and systems (RQ4); and the extent to which these elements display stability versus evolution over time (RQ5).

The SLR in Chapter 2 documented the prominence of nudges, social norms, incentives, and identity-relevant appeals, alongside persistent challenges of social desirability bias and the attitude/intention–behavior gap (Delmas & Burbano, 2011; Sheeran, 2002; White et al., 2019). The present chapter corroborates those emphases while extending them in three directions. First, it shows that transformative marketing—defined here as market re-design that removes friction, reshapes defaults, establishes sustainable standards, or builds pro-environmental infrastructures—has become as

prevalent as norms-based messaging among winning entries. Second, it specifies how social marketing tactics are most frequently mobilized through credible referents and public commitments that render sustainable practices socially legible. Third, it surfaces the comparatively limited but theoretically consequential appearance of co-creation and co-design, particularly in behavioral transitions where legitimacy and local fitness matter.

3.3.1 ADDRESSING THE RESEARCH QUESTIONS

RQ1: What types of marketing interventions that have been shown in academic literature to foster sustainable consumer behavior manifest in real-world award-winning campaigns?

With respect to RQ1 (mechanisms enacted in practice), the quantitative distribution shows that norms mobilization and transformative marketing dominate the repertoire of award-winning campaigns, while co-creation and regulatory/legalistic strategies appear infrequently. This pattern supports the SLR's emphasis on social influence and choice architecture as central levers (Gallopel-Morvan & Crié, 2022; Thaler & Sunstein, 2008, 2008; White et al., 2019), and it suggests that market-shaping and participatory design remain promising complements for closing intention–behavior gaps, particularly in contexts where downstream messaging faces structural barriers. The presence of circularity/resource-recovery and equity–inclusion–justice frames at non-

trivial rates also indicates that material redesign and distributional concerns are entering mainstream brand discourse.

RQ2: Which emotional strategies are most frequently deployed in award-winning sustainable marketing campaigns, and how do these emotions align with the theoretical frameworks identified in the SLR?

For RQ2 (emotions and persuasion), the co-occurrence of trust and joy with clearly specified, feasible next steps emerge as a theoretically salient configuration. The lexical richness analysis and affect clusters provide the textual and affective basis for this proposition. Chapter 4 takes up the question empirically by testing perceptual accuracy and stated adoption likelihood across stimuli that vary in these dimensions.

RQ3: How do linguistic patterns — including frequent words, n-grams, and key topics — reflect theoretical constructs of consumer behavior change?

Regarding RQ3 (linguistic/structural patterns), distinctive lexical fields and a balanced register between repetition and variety refine models of message design for sustainable behavior change. The results suggest that rhetorical efficiency and narrative richness can both be instrumentally effective depending on the pathway to action: tightly repetitive styles support memory and simple calls-to-action; narratively rich styles scaffold identity work, legitimacy, and perceived feasibility for more complex changes.

RQ4: In what ways do businesses assign responsibility for sustainability within their campaign discourse, and how does this resonate with the agent–target dynamics found in the SLR?

For RQ4 (agency assignment), the corpus contains a sizable subset of campaigns that move beyond individualized responsibility, assigning agency to firms, coalitions, and systems. Examples include open industry standards and shared infrastructures that coordinate action among competitors, and platform plays that create peer-to-peer access to scarce sustainability assets. This distribution accords with theoretical claims that durable behavior change requires multi-level action design that addresses both micro-frictions and meso- to macro-level constraints (Akenji, 2014; Anderson et al., 2013; Brennan et al., 2014; Nyborg et al., 2016).

Concerning RQ5 “How have the rhetorical and emotional expressions of sustainable campaigns evolved over time, and what continuities or divergences can be traced between scholarly insights and campaign practices?” (temporal evolution), the corpus suggests diversification rather than convergence in persuasive repertoires. Both formulaic and narratively rich executions are represented among recent award winners, with no single dominant voice. This heterogeneity implies that context, audience, and behavioral pathway influence effectiveness, motivating comparative tests of when each repertoire is likely to succeed. Chapter 4 initiates this agenda by linking text-level features and perceived emotion to willingness to adopt promoted sustainable behavior by brands.

The results of this study reveal that sustainability-oriented marketing campaigns that achieve award recognition construct meaning through a multi-layered discursive architecture. At the lexical level, campaigns share a recognizable rhetorical scaffold comprised of highly recurrent and semantically broad tokens such as “world,” “make,” “people,” “year,” and “change.” These items provide both resonance and universality, serving to situate sustainability concerns as collective and global rather than narrowly sectoral or local. This scaffolding facilitates the creation of discourses that emphasize urgency, scale, and inclusivity, thereby reinforcing the idea that environmental challenges and their solutions transcend individual sectors or industries (Fairclough, 2010; Halliday & Matthiessen, 2013). At the same time, award-winning campaigns distinguish themselves through the integration of more domain-specific anchors, including terms such as “plastic,” “energy,” “water,” and “product.” These anchors serve to ground generalized appeals in recognizable issues, ensuring contextual relevance and signaling credibility (Cook, 2006).

The lexical richness analysis reinforces this interpretation by showing that campaigns tend to cluster within a type–token ratio of 0.70–0.85, which indicates moderate-to-high diversity. This range represents a balance between narrative elaboration and repetitive reinforcement. Campaigns with lower lexical richness emphasize simplicity and slogan-based repetition, which enhances memorability but risks oversimplification (Leech, 2014). Conversely, campaigns at the higher end of lexical

richness employ more elaborate storytelling, offering nuance and sophistication but with fewer repetitive anchors to reinforce central messages. This finding demonstrates that award recognition is not contingent on a singular rhetorical strategy; both minimalist and narrative approaches can achieve visibility and recognition, depending on context, audience, and medium. This flexibility reflects broader advertising principles, which highlight that effective persuasion may rely equally on striking simplicity or compelling narrative complexity (Perloff, 2020).

Thematic and affective analyses further indicate that successful campaigns intertwine rational and emotional appeals. Topic modeling revealed that structural issues such as plastics, waste, or innovation were rarely presented in isolation. Instead, they were systematically linked with emotional framings of care, optimism, and urgency. This pattern aligns with research showing that sustainable communication is most effective when it avoids purely cognitive frames and instead integrates affective cues that enhance salience and memorability (Nisbet, 2009; O'Neill & Nicholson-Cole, 2009). Emotion profiling confirmed this finding, demonstrating that trust and joy formed the dominant baseline across years, thereby constructing a positive affective foundation that reinforces confidence and constructive hope. Yet the episodic rise of anticipation and occasional fear highlights how campaigns mobilize urgency in response to contextual events, consistent with studies emphasizing the importance of threat–efficacy pairings in persuasive health and environmental communication (Witte, 1992; Witte & Allen, 2000).

Clustering further showed that emotional differentiation across campaigns arises not from the type of emotion expressed but from its intensity. The muted cluster dominated the dataset, characterized by low-intensity positive emotions that communicate reassurance and continuity. Balanced campaigns strategically integrated optimism with calibrated urgency, creating messages that were both credible and engaging. High-intensity campaigns, while rare, relied on more extreme emotional repertoire to capture attention. This distribution reflects earlier research suggesting that extreme emotional appeals may be risky, as they can provoke resistance or disengagement, whereas moderate appeals tend to foster sustained engagement (Nabi, 2015). Accordingly, the campaigns recognized with awards appear to embody precisely this balance between stability and urgency.

The analysis of agency adds a further dimension to these findings. By disproportionately emphasizing individual and collective subjects (I, we, you, people, world) over institutional agents (company, brand, government), these campaigns reinforce the privatization of responsibility for sustainability. While such framing can empower individuals by positioning them as agents of change, it simultaneously risks depoliticizing sustainability by sidelining structural and corporate responsibility (Caruana & Crane, 2008; Jackson, 2005). This aligns with critiques of neoliberal environmental discourse, where systemic challenges are reframed as consumer choices, thereby narrowing the scope of accountability (Spaargaren, 2011). The convergence of

findings across sentiment validation tools further confirms this interpretation: the overall dominance of positivity, with a small but consistent negative tail linked to prohibitive or negated constructions, suggests that award-winning campaigns consciously avoid antagonistic tones that might threaten corporate legitimacy.

Collectively considered, these results demonstrate that sustainability marketing, as recognized by leading award bodies, is characterized by optimism, universality, and personalization. Campaigns achieve resonance through the integration of broad appeals with contextual anchors, the fusion of positivity with calibrated urgency, and the framing of individuals rather than institutions as the primary agents of change. While such strategies may maximize recognition and engagement, they also reproduce discursive tensions between individual empowerment and structural accountability that remain central to debates in sustainability communication.

3.3.2 THEORETICAL IMPLICATIONS AND CONTRIBUTIONS

3.3.2.1 THEORETICAL IMPLICATIONS

3.3.2.1.1 INTEGRATING TRANSFORMATIVE MARKETING, SOCIAL MARKETING, NUDGING, AND CO-CREATION

The triangulation between Chapter 2 and Chapter 3, together with the corrected prevalence estimates, allows a more precise articulation of complementarities among the four identified focal lenses. First, transformative marketing emerges as a structural complement to social marketing and nudging, operating at the level of market rules, affordances, and architectures rather than only at the level of persuasion. Second, market

re-design re-specifies what “normal” looks like (e.g., default temperature standards, routing protocols that avoid contrails, or refill infrastructures that obviate packaging), while social marketing supplies credible referents and public commitments that render the redesigned normal socially desirable. Third, nudging in this context functions as the micro-design of choice architecture within the new market frame, minimizing friction and aligning incentives at the point of decision. Finally, co-creation/co-design constitutes the participatory layer that enhances legitimacy, uncovers local constraints, and secures pre-commitments from communities and partners, particularly where distributional concerns and justice claims are salient. The modest incidence of co-creation (5.4%) and regulatory/legalistic levers (6.5%) in the award corpus is not evidence of limited potential; rather, it reflects the creative industry’s historical focus on message craft. This Chapter’s results suggest that greater integration of co-creation with market re-design may be necessary to sustain behavior change in equity-sensitive contexts.

3.3.2.1.2 REGARDING THE INTENTION-BEHAVIOR GAP AND SOCIAL DESIRABILITY

The SLR emphasized the attitude/intention-behavior gap and social desirability bias as pervasive challenges for sustainable pro-environmental behavior changes (Delmas & Burbano, 2011; Sheeran, 2002; White et al., 2019). The present analysis clarifies two pathways, according to industry evaluation, for addressing those challenges. First, feasibility signaling—conveyed through standards, infrastructure, and clear next steps—appears repeatedly as the hinge between aspiration and action. Campaigns that pair

credibility cues with low-friction pathways demonstrate how norms and identity appeals can translate into uptake without over-reliance on willpower. Second, public legitimacy and commitment—achieved through visible participation of referent groups and collective rituals—reduce the reputational risk associated with early adoption and mitigate the tendency to over-state green intentions while failing to act. These patterns accord with literatures on commitment devices, reputational cascades, and the alignment of injunctive and descriptive norms (Allcott, 2011; Cialdini, 2003; Goldstein et al., 2008; Schultz et al., 2007; White & Simpson, 2013), and they motivate the Chapter 4 tests of whether audiences actually perceive the trust–joy configuration and feasibility cues presumed by businesses’ marketing creative teams.

3.3.2.1.3 TOWARD A MULTI-LEVEL ACTION DESIGN

The results encourage a reframing of sustainable consumption interventions as multi-level action design. At the micro level, nudges, and incentives shape moment-to-moment choices. At the meso level, transformative marketing alters the architecture of the market encounter, making sustainable choices simple, default, and reputationally advantageous. At the macro level, social marketing mobilizes collective identity and normative alignment across organizations, while co-creation grounds the transition in local problem-solving and equity considerations. The corpus also demonstrates that these levels can be coordinated in publicly visible ways, and that effective language often occurs with credibility and feasibility cues. This constitutes an integrative theoretical lens

for the distribution reported above—where norms and market re-design dominate, but where under-leveraged co-creation and governance levers may be pivotal for scale and durability.

3.3.2.1.4 LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Several limitations temper this study’s generalization. The reliance on public, award-winning cases over-represents aesthetically ambitious or novel executions and under-represents routine, incremental interventions. The automated transcription and translation pipeline, while rigorous, necessarily omitted a small number of videos where intelligible text could not be recovered; highly visual spots with minimal voiceover remain under-represented in a text-forward analysis. The hybrid rule-guided coding schema was optimized for brief, rhetorically compressed texts; in this setting, sentence-level precision may come at the expense of latent nuance, potentially under-detecting constructs that are shown rather than said.

Future research should extend beyond award repositories to include non-winning and in-market campaigns, link message features to behavioral telemetry where feasible, and integrate multimodal features (visual motifs, music, pacing) that may carry identity, feasibility, and agency cues independent of text. Multisite field experiments that manipulate the joint presence of norms, transformative marketing, and co-creation could illuminate complementarity and/or substitution patterns among the four lenses. In addition, longitudinal designs could track diffusion of market-design innovations and

the institutionalization of voluntary standards, testing whether open-standards moves function as normative anchors in adjacent categories. Finally, cross-cultural comparisons are warranted, given that norms and identity appeals are culturally embedded, and co-creation practices vary with institutional trust and civic infrastructure.

3.3.2.2 THEORETICAL CONTRIBUTIONS

A first contribution is an empirically grounded typology that integrates social norms mobilization, transformative marketing/market design, nudges and choice architecture, social marketing for public good, and co-creation/co-design with complementary enablers such as infrastructure and governance/credibility devices. Within the curated corpus of award-winning campaigns, social norms mobilization appears most frequently, present in 73 of 184 cases (39.7%), closely followed by transformative marketing in seventy-one cases (38.6%). Incentives appear in sixty-one campaigns (33.2%), equity–inclusion–justice framings in 43 (23.4%), circularity/resource recovery in 38 (20.7%), and nudges/choice architecture in 36 (19.6%). Techno-solutionism appears in 29 (15.8%), education/awareness in 24 (13.0%), identity-relevant appeals in 23 (12.5%), and social marketing for public good in 17 (9.2%); infrastructure enablers (15; 8.2%), regulatory/legalistic levers (12; 6.5%), co-creation/co-design (10; 5.4%), and offsets/limits/accounting (7; 3.8%) are less common but theoretically salient. The distribution aligns with Chapter 2's map of the theoretical terrain—prominence of norms, nudges, incentives, and identity—while highlighting that market-co-design and

participatory approaches remain comparatively under-represented avenues for addressing attitude/intention–behavior gaps and social desirability pressures (Delmas & Burbano, 2011; Messiha et al., 2023; Prahalad & Ramaswamy, 2004; Sheeran, 2002; White et al., 2019).

A second contribution refines the conceptualization of transformative marketing practices by documenting concrete market-shaping moves that alter defaults and choice sets (nudging), thereby complementing message-led persuasion. Case vignettes include industry-level standards change (e.g., promoting the recalibration of “normal” in temperature settings without new capital expenditure), marketing algorithmic avian re-routing to avoid high-impact contrails, advertising peer-to-peer access platforms that unlock latent capacity in distributed charging assets, and refill or “package-free” innovations that make low-impact behavior obvious and easy. Such interventions instantiate a design logic that directly targets the friction points highlighted in Chapter 2, namely cognitive overload, hassle costs, and structural unavailability of pro-environmental options (Anderson et al., 2013; Gallopel-Morvan & Crié, 2022; Kumar, 2018; Thaler & Sunstein, 2008). They also clarify that interventions frequently labeled as “communication” are, in practice, market re-engineering that modifies the opportunity structure in ways compatible with social marketing’s upstream orientation (Andreasen, 2006; Gordon, 2013).

A third contribution advances theory on social marketing and social norms by specifying how campaigns make sustainable behavior socially legible and desirable. Across multiple exemplars, campaigns enlist credible referents (e.g., professional sports leagues), stage public commitments and collective rituals, and present open standards to anchor inter-business descriptive norms. These features resonate with evidence that normative information can powerfully shift behavior when injunctive and descriptive cues are aligned, while also underscoring the need to avoid boomerang effects and reactance in groups with discrepant baselines (Allcott, 2011; Cialdini, 2003; Goldstein et al., 2008; Schultz et al., 2007). The corpus further illustrates boundary conditions emphasized in the SLR: norms are most effective when supported by feasibility cues and enabling infrastructures, which reduce the cognitive and logistical effort required to translate intention into action (Čapienė et al., 2022; White & Simpson, 2013).

A fourth contribution clarifies the affective architecture of sustainability messaging. Emotion profiling and clustering reveal that successful executions bifurcate into narratively rich discourse with high lexical variety and more formulaic, repetitive styles with high redundancy, suggesting multiple persuasive repertoires rather than a single canonical voice. The “sweet spot” comprises campaigns with moderate type–token ratios that balance variety and repetition, consistent with processing-fluency theory, dual-process processing, or the elaboration likelihood model (Cacioppo et al., 1986; J. Kitchen et al., 2014; Malvern, 2008; McCarthy & Jarvis, 2010; Petty et al., 1983; Reber et

al., 2004; Shahab et al., 2021; Tellis, 2004). In parallel, TF-IDF analysis surfaces distinctive lexical anchors— “world,” “people,” “energy,” “plastic,” “water” —that structure topical salience across cases and mirror the environmental issues prioritized in the campaigns. The affect clusters reported indicate that muted or low-intensity appeals are common, while balanced emotional profiles are also substantial, implying that attention capture is insufficient without credibility and feasibility cues that signal a clear, low-friction course of action.

The fifth contribution is methodological. The chapter operationalizes a reproducible architecture that integrates a hybrid abductive coding design—combining a priori categories from the SLR with inductively surfaced themes—with lexicon- and vectorization-based NLP. Rule-guided inclusion was used to ensure that brief, rhetorically compressed texts could be consistently mapped to theoretically meaningful categories; constant comparison and ongoing notetaking were used until saturation was reached. The NLP stack—TF-IDF with scikit-learn and emotion mapping via the NRC lexicon—adds granularity to rhetorical differentiation and affective density, enabling cross-case comparisons of distinctive vocabulary and emotional saturation that are otherwise difficult to capture in short-form advertisements.

3.3.3 MANAGERIAL CONTRIBUTIONS AND IMPLICATIONS

For practitioners charged with designing sustainable consumption initiatives, several implications follow. First, the evidence favors portfolio design rather than single-

lever campaigns. Transformative marketing should be used to re-specify the default option or remove a salient friction in the usage journey; social marketing should then render the redesigned behavior socially legible and desirable through credible referents and public commitments; nudging should smooth micro-decisions within the new architecture; and co-creation should secure local legitimacy and pre-commit consumers. The corpus provides concrete templates: open standards that encourage rapid coalition formation and inter-firm descriptive norms; routing and scheduling protocols that embed sustainability in operational logic; refill and reverse-logistics infrastructures that make low-impact purchasing frictionless; and platform plays that turn distributed assets into access systems.

Second, message design should be aligned with affective flow and feasibility. The language analyses indicate that both narratively rich and tightly repetitive styles can be effective, but only when they culminate in trust-laden, approach-oriented affect paired with a concrete, easy next step. In practical terms, scripts should be audited for the presence of feasibility markers (e.g., “no purchase needed,” “costs nothing to implement,” “can do this right now by...”) and for credibility markers that anchor claims in open data, third-party validation, or peer participation. TF-IDF and lexical-richness diagnostics can be repurposed as pre-flight checks to ensure conceptual clarity without sacrificing memorability.

Third, the modest use of co-creation/co-design implies untapped opportunity, particularly for transitions with contested distributions of cost and benefit. Managers should involve communities, supply-chain partners, and frontline workers early, using co-design to surface hidden feasibility constraints, adapt infrastructures to local contexts, and establish public pre-commitments that stabilize nascent norms. In equity-sensitive domains, co-creation can also mitigate perceptions of green elitism and better align interventions with lived realities, thereby attenuating social desirability biases, the sustainability liability (Luchs et al., 2010), and attitude/intention-behavior gap (Claudy et al., 2013; Moraes et al., 2012; Vermeir & Verbeke, 2006; Yamoah & Acquaye, 2019). This way, businesses can improve uptake even among non-enthusiast segments.

Finally, governance and credibility should be treated as design variables. The corpus contains a minority of campaigns that mobilize third-party audits, open data, and voluntary standards; these features enable coordination and mitigate greenwashing risk—issues foregrounded in the SLR. A managerial roadmap would therefore integrate governance choices into the creative brief: specify what will be opened (data, IP, standards), who will validate claims, and how progress will be reported to maintain reputational incentives for continued participation.

4 CHAPTER 4: CONSUMERS' PERSPECTIVE – CONSUMER PERCEPTION OF SUSTAINABILITY MARKETING (PROJECT 3)

This third project extends the programmatic inquiry from Chapter 2's systematic literature review (SLR) and Chapter 3's corpus-based analysis of award-winning sustainability campaigns into the lived perspectives of consumers. Chapter 2 mapped the theoretical and empirical terrain of marketing interventions designed by for-profit firms to promote sustainable behavior, identifying the prominence of nudges, social norms, incentives, and identity-relevant appeals alongside persistent challenges such as social desirability bias and the intention–behavior gap (Delmas & Burbano, 2011; Sheeran, 2002; White et al., 2019). Chapter 3 complemented this with computational evidence that award-winning campaigns converge on a recognizable rhetorical scaffold, stabilize affect around trust and joy, selectively layer urgency via anticipation and occasional fear, and foreground individual/collective agency over institutional accountability.

The present study turns to real audiences to ask whether – and how – these textual strategies register at the level of experience. It collects open-ended responses to carefully selected “stimulus campaigns” representing each of the eight NRC emotions (anger, anticipation, disgust, fear, joy, sadness, surprise, trust) (Mohammad & Turney, 2013). The research design deliberately distinguishes opinion mining (cognitive, propositional content: what respondents think) from sentiment/emotion mining (affective content: what respondents feel) (Liu, 2012; Pang & Lee, 2008; Wiebe et al., 2005). In doing so, it operationalizes the dual-process spirit implicit in Chapter 3: cognitive evaluations of

credibility, clarity, and responsibility sit alongside affective responses that can facilitate or impede persuasion (Nabi, 2015; Witte & Allen, 2000).

Methodologically, the study uses mixed and open-ended questionnaires to anonymous respondents to elicit natural language rather than constraining meaning within narrowly pre-specified scales. This serves two goals. First, it mitigates the measurement artifacts that often accompany strongly structured items in sustainability settings, such as social desirability bias (Carrington et al., 2014; Fisher & Katz, 2000). Second, by exposing participants to campaigns that Chapter 4 algorithmically labeled as representative of specific NRC emotions, we test convergent validity: do audiences report the same emotions the models inferred (Devlin et al., 2018; Mohammad & Turney, 2013)?

The contribution is thus threefold. The study (i) empirically validates and nuances Chapter 3's computational inferences in the real world, (ii) bridges theory and practice by linking the SLR's mechanisms to on-the-ground reactions, and (iii) generates design-relevant evidence for practitioners about which textual and emotional choices resonate as credible, motivating, and actionable (O'Neill & Nicholson-Cole, 2009; Perloff, 2020).

In sum, the following research questions guide this project:

- RQ1: How do consumers cognitively evaluate award-winning sustainability campaigns in terms of message clarity, credibility, and perceived responsibility?

- RQ2: Which discrete emotions do consumers report in response to campaigns labeled as representative of each NRC emotion, and to what extent do audience reports align with computational labels?
- RQ3: How do mixed affective states relate to self-reported likelihood of adopting the promoted behavior and identity alignment?
- RQ4: What themes and argumentative frames emerge in consumers' open-ended responses, and how do these maps to the mechanisms highlighted in Chapter 2 (e.g., nudges, norms, identity, incentives, etc.)?

4.1 OVERALL MIXED METHOD METHODOLOGY

4.1.1 DESIGN, SAMPLING, AND ETHICS

This chapter adopts a convergent mixed-methods design in which quantitative and qualitative data were gathered contemporaneously via the same online instrument and analyzed in parallel to enable triangulation and complementarity (Greene et al., 1989; Johnson et al., 2007). Participants viewed multiple sustainability-oriented video executions and, after each exposure, provided (a) structured ratings used in the quantitative analyses and (b) brief, open-ended reflections used in the qualitative analyses. The complete wording of all items, response options, and coding instructions is provided in Appendix 9.7.

4.1.1.1 EXPLORATORY QUANTITATIVE STRAND

Immediately after each video, respondents rated the intensity of a fixed set of discrete emotions on 1–7 Likert scales and indicated their likelihood of adopting the advocated behavior on a 1–7 scale. A forced choice “dominant emotion” item captured the single label respondents felt best characterized their reaction to the execution. These within-person repeated-measures ratings supported campaign-level descriptive comparisons, within-person contrasts between pre-specified pairs of executions, and associations between emotion intensity and adoption likelihood. All quantitative analyses were conducted in JASP, using rank-based omnibus and post-hoc tests where appropriate, nonparametric correlations (Spearman ρ), and effect-size estimation with nonparametric bootstrap confidence intervals. Uncertainty was estimated with bootstrapping in JASP: the sample of 50 participants was resampled with replacement 2,000 times, and the statistic was recalculated on each resample (Cumming, 2014; Efron, 1979; Efron & Tibshirani, 1994; Hesterberg, 2015).

4.1.1.2 QUALITATIVE STRAND

The qualitative component comprised written, free-text responses embedded within the questionnaire. Texts were analyzed using reflexive thematic analysis, a flexible method suited to short-form, survey-embedded materials because it identifies patterned meaning across a corpus without assuming a specific mode of data generation (Braun & Clarke, 2006, 2019). Coding proceeded iteratively from initial inductive codes to

candidate themes and subthemes, with attention to semantic content and contextual interpretation rather than frequency counts alone. Integration occurred at the interpretation stage, where qualitative insights were used to explain quantitative patterns (e.g., why particular emotion–adoption associations emerged for specific executions) and to illuminate mechanisms relevant to the identified themes in the SLR (transformative marketing, social marketing, nudging, and co-creation/co-design).

4.1.1.3 SAMPLING AND SAMPLE SIZE

A moderate sample (N = 50) of adult panelists completed the study on Prolific (Palan & Schitter, 2018; Prolific, 2014), a platform that provides access to a vetted pool of respondents for academic research. A standard (non-representative) distribution was used, and eligibility was restricted to residents of the United States. U.S. residents were targeted to ensure native-English comprehension of nuanced stimuli, reducing measurement error from translation and culturally patterned response styles known to bias Likert ratings (Chen et al., 1995). Moreover, U.S. consumers rank among the world’s highest per-capita, consumption-based emitters, making them a theoretically consequential audience for sustainability communication study (Hertwich & Peters, 2009; Ivanova et al., 2020).

To ensure that participants could view video stimuli and provide extended written responses, access was limited to desktop or laptop devices. The completion pathway was set to manual review to verify data quality and compliance with instructions. The target

sample size was fifty participants. The study was advertised as a 30-minute task with compensation set at £3.50 (£7/hour). Screening criteria required an approval rate of at least 95%, a minimum of twenty prior Prolific submissions, and self-reported fluency in English. These platform settings reflect common practices for obtaining higher-quality online samples and reducing inattentive responding (Palan & Schitter, 2018; Peer et al., 2017).

The target N was set a priori using two complementary logics that are appropriate for mixed methods work. First, saturation evidence indicates that a large share of high-prevalence qualitative themes typically emerges early. Guest, Bunce, and Johnson (2006) observed that most common codes appeared within roughly 6–12 cases; subsequent work differentiates code saturation (range of issues; ≈ 9 cases) from meaning saturation (nuanced understanding; typically 16–24 cases) (Hennink et al., 2017). Although these estimates derive from interviews, the underlying logic concerns the accumulation of new thematic information in textual data and applies to written open-ended responses. With eight stimuli per participant, $N = 50$ affords ample “information power” to identify prevalent patterns and to elaborate meanings, including less common but theoretically or managerially consequential perspectives (Malterud et al., 2016).

For the quantitative strand, the repeated-measures structure increases precision for within-person contrasts and correlations, enabling precise estimation of campaign means, paired differences, and emotion–adoption associations with nonparametric

interval estimates rather than relying solely on large-sample normal theory (Cumming, 2014; Hesterberg, 2015). Pragmatic considerations typical of applied research (e.g., budgeted panel size) also informed the final N (Vasileiou et al., 2018).

4.1.1.4 ETHICS AND DATA PROTECTION

Procedures complied with institutional and disciplinary ethical standards for online research with adults able to provide informed consent. Participation was fully self-administered and anonymous: no names or direct identifiers were collected; any platform identifiers used for eligibility or compensation were stored separately from response data and were not available to the research team during analysis. An online information sheet preceded consent; participants could withdraw at any point without penalty. Data were stored on access-restricted servers, and only de-identified datasets were analyzed or shared. The anonymity and self-administration features are known to reduce social desirability bias and to increase candor in reporting potentially sensitive or socially desirable attitudes (Gnambs & Kaspar, 2015; Joinson, 1999; Tourangeau & Yan, 2007). All procedures were consistent with the ethical principles of the Declaration of Helsinki for research involving human participants (World Medical Association, 2013).

4.1.2 STIMULUS SELECTION

Following Chapter 3's labeling of dominant emotions per campaign, exemplary campaigns were selected for each of the eight NRC (Mohammad & Turney, 2013). The selection ensures diversity across brands/categories and avoids near duplicates where

possible. To ensure relevance and emotional resonance, campaigns were first ranked by their emotion scores, and only those with the highest values for the target emotions were retained. From this refined pool, selections prioritized English-language content that was concise, consumer-facing, and behaviorally specific—excluding résumé-style submissions intended for award juries, which are often unavailable online. Whenever possible, videos with direct YouTube links were chosen to facilitate seamless embedding into the survey platform. The resulting campaigns list can be found in Appendix 9.6.

Each participant views each of these eight stimuli (1 per emotion) as video forms. The rationale is to elicit both within-emotion consistency (do two “joy” campaigns both read as joyful?) and between-emotion discriminability (are participants’ reports distinct across target emotions?)—a psychometric logic adapted for text stimuli (Nabi, 2015; Witte & Allen, 2000).

4.1.3 MEASURES AND INSTRUMENT

The survey’s quantitative instrument comprised four components aligned with the theoretical focus on emotion-based persuasion, adoption intentions, and individual differences relevant to sustainable consumption. First, participants provided campaign-specific ratings after viewing each execution. For each campaign, they indicated the intensity of eight discrete emotions—anger, fear, sadness, guilt, disgust, hope, pride, and joy—using 7-point Likert response options, and they selected a single “dominant emotion” in a forced-choice format; for each choice we later evaluated whether the chosen

emotion was the statistically modal response for that campaign. Second, participants rated their likelihood of adopting the promoted behavior on a 1–7 scale; an overall adoption index (AdoptionMean) was computed by averaging across executions within the relevant comparison sets and by campaign when appropriate. Third, a baseline attitude scale toward sustainability and related practices was administered prior to exposure, followed by binary or categorical responses: recent environmental action (yes/no), environmental concerned (Likert scales), etc. Fourth, manipulation-check items the perceived “fit” of the dominant emotion label. The complete wording of all questions, response scales, and coding specifications is reproduced in Appendix 9.7.

4.1.4 MANIPULATION CHECK

To quantify whether participants perceived the intended and dominant emotion, we performed two checks per campaign. First, in the ratings task, participants rated the intensity of eight emotions (Anger, Anticipation, Disgust, Fear, Joy, Sadness, Surprise, Trust) on 7-point Likert scales. For each campaign we computed a “ratings dominance” index = (rating of the target emotion) – (mean of the seven non-target emotions) and evaluated whether its mean exceeded zero (one-sample t-test, one-sided), reporting Cohen’s *d* and 95% CIs. Second, in the forced-choice task, participants selected one dominant emotion; we assessed whether the proportion selecting the target emotion exceeded chance ($1/8 = 12.5\%$) using a binomial test (one-sided), with 95% CIs; we also report whether the proportion exceeded 50% (majority).

4.2 RESULTS

4.2.1 EXPLORATORY QUANTITATIVE ANALYSIS

Although the present study was not designed to support formal causal inference or predictive modeling, a light-touch quantitative exploration was undertaken to characterize broad patterns in the effectiveness of businesses' marketing campaigns for behavior change and emotional resonance. The analytic approach prioritized interpretability and robustness over parametric precision, leveraging ordinal-consistent methods suited to the scale structure and sample size. All analyses should be understood as exploratory, intended to surface descriptive contrasts and plausible associations rather than definitive conclusions. With this framing in place, the following results summarize key patterns in self-reported willingness to adopt sustainability-promoting behaviors across the selected eight representative campaigns.

4.2.1.1 GENERAL DEMOGRAPHIC OF RESPONDENTS

The dataset comprises fifty respondents. The age distribution is skewed toward mid-life, with the largest share in the 45–54 category (14 respondents; 28%), followed by 25–34 (13; 26%) and 35–44 (10; 20%). Older and younger tails are comparatively small: 55–64 (7; 14%), 18–24 (3; 6%), and 65 and older (3; 6%). Overall, three quarters of the sample fall between 25 and 54 years of age, and the modal segment is 45–54; the median category lies at 35–44. This profile indicates a working-age sample with limited representation at the extremes of the age distribution.

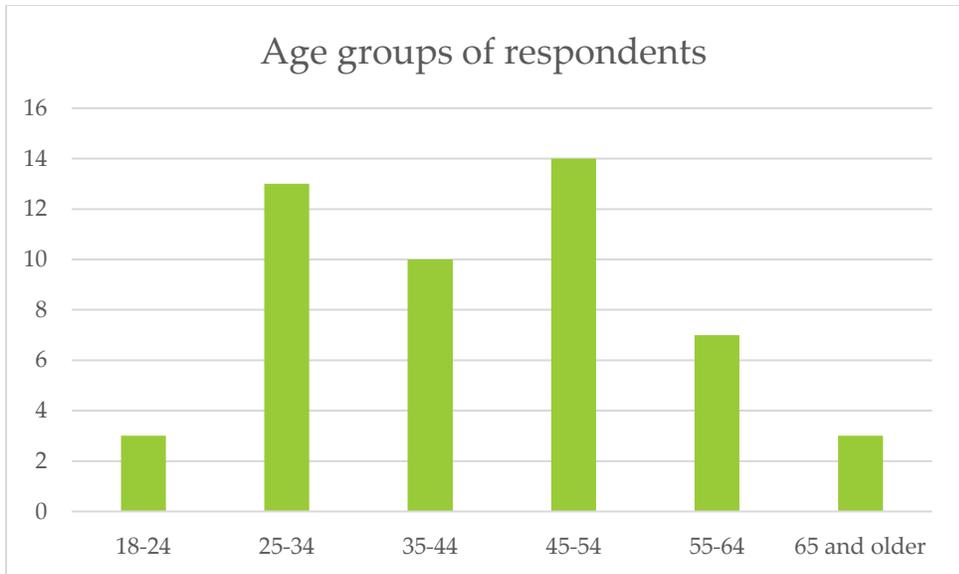


Figure 74 Age groups of respondents.

Sex is moderately imbalanced toward women. Thirty respondents identify as female (60%) and twenty as male (40%). This composition should be considered when interpreting results that may be sensitive to sex-based differences, as estimates will reflect a modest female majority. As a basic quality check, counts for age and sex each sum to fifty, suggesting minimal or no item nonresponse on these demographics. Analytically, the findings should therefore be read as indicative of mid-career perspectives within a slightly female-leaning sample, with caution warranted when generalizing to the youngest and oldest age groups.

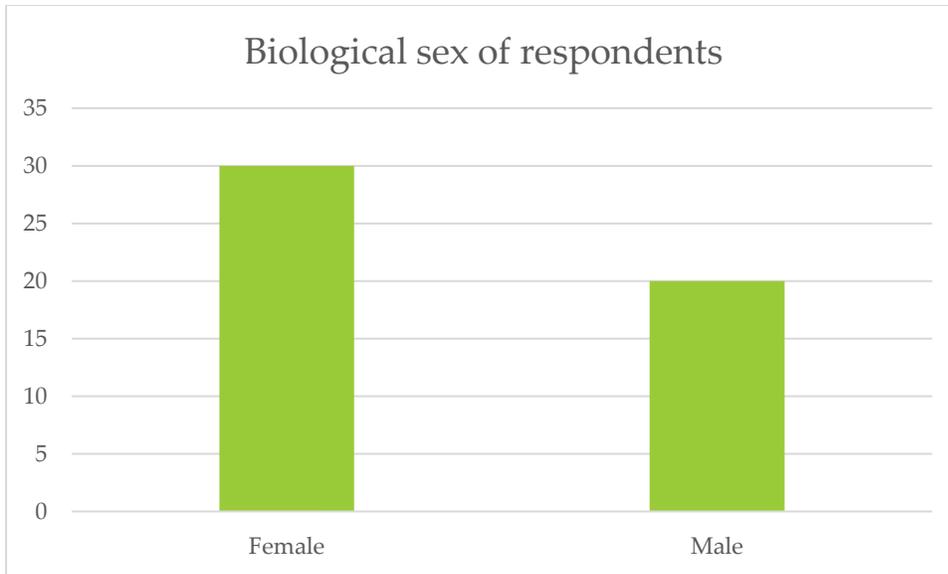


Figure 75 Biological sex of respondents.

4.2.1.2 RELIABILITY OF THE BASELINE ATTITUDE SCALE (WITH CI)

Overall, the measurement and analytic strategy yielded a coherent and theoretically interpretable portrait of how eight sustainability-related marketing campaigns differentially influenced self-reported willingness to adopt promoted behaviors. The four-item baseline sustainability attitude battery exhibited good internal consistency (Cronbach's $\alpha \approx 0.86$, 95% CI [[0.79], [0.91]], bootstrapped non-parametrically with 2,000 resamples), comfortably exceeding conventional adequacy thresholds and justifying its use as a composite covariate and descriptive indicator (Tavakol & Dennick, 2011).

Table 8 Reliability of the baseline attitude scale (with CI)

Reliability of the baseline attitude scale (with CI)

| Coefficient | Estimate | Std. Error | 95% CI | |
|----------------------|----------|------------|--------|-------|
| | | | Lower | Upper |
| Coefficient α | 0.86 | 0.03 | 0.79 | 0.91 |
| Mean | 4.73 | 0.16 | 4.42 | 5.04 |
| Variance | 1.23 | 0.25 | 0.86 | 1.92 |

Reliability of the baseline attitude scale (with CI)

| Coefficient | Estimate | Std. Error | 95% CI | |
|-------------|----------|------------|--------|-------|
| | | | Lower | Upper |
| SD | 1.11 | 0.08 | 0.93 | 1.38 |

Table 9 Questions codes, campaigns, and emotion scores (from previous NRC analysis)

| | Campaign | Dominant emotions | Emotion Scores |
|----|--|-------------------|---|
| Q1 | Inglorious Fruits and Vegetables - Intermarché | Anticipation | Anger 4, Anticipation 13, Disgust 10, Fear 4, Joy 12, Sadness 4, Surprise 5, Trust 10 |
| Q2 | Mosquitoes vs Mosquitoes - Quinto Andar | Anger | Anger 24, Anticipation 6, Disgust 19, Fear 9, Joy 2, Sadness 5, Surprise 2, Trust 5 |
| Q3 | I'm an Asshole – Tushy | Disgust | Anger 9, Anticipation 13, Disgust 13, Fear 3, Joy 8, Sadness 1, Surprise 2, Trust 11 |
| Q4 | Let's look after what we love - Sky | Fear | Anger 1, Anticipation 1, Disgust 0, Fear 2, Joy 0, Sadness 0, Surprise 0, Trust 1 |
| Q5 | Twiggy Full Circle | Joy | Anger 8, Anticipation 17, Disgust 1, Fear 9, Joy 26, Sadness 8, Surprise 19, Trust 19 |
| Q6 | Cap the Tap - Reckitt Finnish | Sadness | Anger 3, Anticipation 7, Disgust 0, Fear 16, Joy 2, Sadness 18, Surprise 0, Trust 6 |
| Q7 | Fog Point Limited Edition Vodka - Hangar 1 Vodka | Surprise | Anger 0, Anticipation 3, Disgust 0, Fear 0, Joy 2, Sadness 0, Surprise 9, Trust 3 |
| Q8 | Cold Call - Tide | Trust | Anger 6, Anticipation 8, Disgust 3, Fear 1, Joy 10, Sadness 2, Surprise 5, Trust 15 |

4.2.1.3 MANIPULATION CHECK

To evaluate whether each stimulus conveyed its intended dominant emotion, two complementary checks were conducted. First, for the ratings task, a dominance index was computed for each stimulus: the respondent's rating of the target emotion minus the mean of the seven non-target emotions (1–7 scales). One-sample t-tests (one-sided, H_1 : mean > 0) evaluated whether the dominance index exceeded zero; Cohen's d with one-sided 95% CIs quantifies effect size.

The check succeeded for 4 of 8 targets: Trust ($t(49) = 9.55$, $p < .01$, $d = 1.35$, 95% one-sided CI for d [1.02, ∞)), Joy ($t(49) = 7.69$, $p < .01$, $d = 1.09$ [0.79, ∞)), Surprise ($t(49) = 7.64$, $p < .01$, $d = 1.08$ [0.78, ∞)), and Anticipation ($t(49) = 2.58$, $p < .01$, $d = 0.37$ [0.12, ∞)). Disgust trended positive but did not meet the one-sided criterion ($t(49) = 1.49$, $p = .07$, $d = 0.21$

[-0.03, ∞)). In contrast, Anger ($t(49) = -9.97$, one-sided $p = 1.00$; two-sided $p < .01$, $d = -1.41$), Fear ($t(49) = -4.77$, one-sided $p = 1.00$, two-sided $p < .01$, $d = -0.67$), and Sadness ($t(49) = -6.06$, one-sided $p = 1.00$, two-sided $p < .01$, $d = -0.86$) were rated lower than the non-targets on average, indicating misalignment for those stimuli.

Table 10 Forced-Choice Emotion Selection: Binomial Test Against Chance Level (.125) (one-sided)

One Sample T-Test

| | t | df | p | Cohen's d | SE Cohen's d | 95% CI for Cohen's d | |
|--|-------|----|-------|-----------|--------------|----------------------|-------|
| | | | | | | Lower | Upper |
| Inglorious Fruits and Vegetable (Anticipation) | 2.58 | 49 | < .01 | 0.37 | 0.15 | 0.12 | ∞ |
| Mosquitoes vs Mosquitoes (Anger) | -9.97 | 49 | 1.00 | -1.41 | 0.20 | -1.73 | ∞ |
| I'm an Asshole (Disgust) | 1.49 | 49 | .07 | 0.21 | 0.14 | -0.03 | ∞ |
| Let's look after what we love (Fear) | -4.77 | 49 | 1.00 | -0.67 | 0.16 | -0.93 | ∞ |
| Twiggy Full Circle (Joy) | 7.69 | 49 | < .01 | 1.09 | 0.18 | 0.79 | ∞ |
| Cap the Tap (Sadness) | -6.06 | 49 | 1.00 | -0.86 | 0.17 | -1.13 | ∞ |
| Fog Point Limited Edition Vodka - (Surprise) | 7.64 | 49 | < .01 | 1.08 | 0.18 | 0.78 | ∞ |
| Cold Call (Trust) | 9.55 | 49 | < .01 | 1.35 | 0.20 | 1.02 | ∞ |

Note. For the Student t-test, the alternative hypothesis specifies that the mean is greater than 0.

Note. Student's t-test.

Note: One-sided CIs appear as [lower, ∞) because the alternative was “greater than zero.”

Table 11 Forced-Choice Emotion Selection: Binomial Test Against Chance Level (.125) (two-sided)

One Sample T-Test

| | t | df | p | Cohen's d | SE Cohen's d | 95% CI for Cohen's d | |
|--|-------|----|-------|-----------|--------------|----------------------|-------|
| | | | | | | Lower | Upper |
| Inglorious Fruits and Vegetable (Anticipation) | 2.58 | 49 | .01 | 0.37 | 0.15 | 0.08 | 0.65 |
| Mosquitoes vs Mosquitoes (Anger) | -9.97 | 49 | < .01 | -1.41 | 0.20 | -1.80 | -1.01 |
| I'm an Asshole (Disgust) | 1.49 | 49 | .14 | 0.21 | 0.14 | -0.07 | 0.49 |
| Let's look after what we love (Fear) | -4.77 | 49 | < .01 | -0.67 | 0.16 | -0.98 | -0.36 |
| Twiggy Full Circle (Joy) | 7.69 | 49 | < .01 | 1.09 | 0.18 | 0.73 | 1.43 |
| Cap the Tap (Sadness) | -6.06 | 49 | < .01 | -0.86 | 0.17 | -1.18 | -0.53 |
| Fog Point Limited Edition Vodka - (Surprise) | 7.64 | 49 | < .01 | 1.08 | 0.18 | 0.73 | 1.43 |
| Cold Call (Trust) | 9.55 | 49 | < .01 | 1.35 | 0.20 | 0.96 | 1.73 |

Note. For the Student t-test, the alternative hypothesis specifies that the mean is different from 0.

Note. Student's t-test.

Note: Two-sided p-values for negative t statistics are reported parenthetically above to show that the downward deviations for Anger, Fear, and Sadness are statistically reliable in the opposite direction.

A complementary forced-choice manipulation check (with matches being labeled “1”, otherwise “0”), using one-sided binomial tests against the 12.5% chance rate, likewise showed above-chance selection for Surprise (28/50 = 56%, $p < .01$), Joy (21/50 = 42%, $p < .01$), Disgust (18/50 = 36%, $p < .01$), and Trust (14/50 = 28%, $p < .01$), with Anticipation (5/50 = 10%, $p = .77$), Fear (4/50 = 8%, $p = .89$), Sadness (4/50 = 8%, $p = .89$), and Anger (1/50 = 2%, $p = 1.00$) not exceeding chance.

Binomial Test

| Variable | Level | Counts | Total | Proportion | p | 95% CI for Proportion | |
|--|-------|--------|-------|------------|-------|-----------------------|-------|
| | | | | | | Lower | Upper |
| Inglorious Fruits and Vegetable (Anticipation) | 0 | 45 | 50 | 0.90 | < .01 | 0.80 | 1.00 |
| | 1 | 5 | 50 | 0.10 | .77 | 0.04 | 1.00 |
| Mosquitoes vs Mosquitoes (Anger) | 0 | 49 | 50 | 0.98 | < .01 | 0.91 | 1.00 |
| | 1 | 1 | 50 | 0.02 | 1.00 | 1.03×10^{-3} | 1.00 |
| I'm an Asshole (Disgust) | 0 | 32 | 50 | 0.64 | < .01 | 0.51 | 1.00 |
| | 1 | 18 | 50 | 0.36 | < .01 | 0.25 | 1.00 |
| Let's look after what we love (Fear) | 0 | 46 | 50 | 0.92 | < .01 | 0.83 | 1.00 |
| | 1 | 4 | 50 | 0.08 | .89 | 0.03 | 1.00 |
| Twiggy Full Circle (Joy) | 0 | 29 | 50 | 0.58 | < .01 | 0.45 | 1.00 |
| | 1 | 21 | 50 | 0.42 | < .01 | 0.30 | 1.00 |
| Cap the Tap (Sadness) | 0 | 46 | 50 | 0.92 | < .01 | 0.83 | 1.00 |
| | 1 | 4 | 50 | 0.08 | .89 | 0.03 | 1.00 |
| Fog Point Limited Edition Vodka - (Surprise) | 0 | 22 | 50 | 0.44 | < .01 | 0.32 | 1.00 |
| | 1 | 28 | 50 | 0.56 | < .01 | 0.43 | 1.00 |
| Cold Call (Trust) | 0 | 36 | 50 | 0.72 | < .01 | 0.60 | 1.00 |
| | 1 | 14 | 50 | 0.28 | < .01 | 0.18 | 1.00 |

Note. For all tests, the alternative hypothesis specifies that the proportion is greater than 0.125.

To conclude, the strongest convergent evidence comes from Joy, Surprise, and Trust, which pass both checks. Anticipation passes the ratings-dominance test but not forced choice, suggesting a moderate elevation in intensity that did not translate to selection for most respondents. Disgust shows the opposite pattern, chosen as primary more than chance but not elevated enough on average to exceed the non-target mean. Given that NRC labels are text-derived while these are multimodal video ads, such shifts are theoretically coherent: audiovisual execution (music, pacing, visuals, narrative) can re-weight perceived dominance (Nabi, 2015).

4.2.1.4 ARE CAMPAIGNS' EFFECTIVENESS DIFFERENT OVERALL?

4.2.1.4.1 OMNIBUS RESULT

A within-subjects omnibus test demonstrated clear differences among campaigns on the 1–7 willingness scale. The Friedman test—appropriate for ordinal outcomes and the observed sphericity violation in repeated-measures ANOVA—was significant, $\chi^2(7) = 88.05$, $p < .01$, with Kendall's $W \approx .25$ indicating a moderate repeated-measures effect. This nonparametric approach ensures valid inference without relying on normality or sphericity assumptions known to be fragile for Likert-type data and small sample sizes (Greenhouse & Geisser, 1959).

Table 12 Willingness to adopt/change behavior across eight campaigns.

Friedman Test

| Factor | X^2_F | df | p | Kendall's W |
|--|---------|----|-------|-------------|
| Marketing Campaigns for Behavioral Changes | 88.05 | 7 | < .01 | 0.25 |

4.2.1.4.2 CONOVER'S POST HOC COMPARISON)

Following the omnibus Friedman test, Conover pairwise comparisons with Holm correction identified fifteen significant differences (all $p_{\text{holm}} < .01$)

Table 13 Conover's Post Hoc Comparisons - Marketing Campaigns for Behavioral Changes

Conover's Post Hoc Comparisons - Marketing Campaigns for Behavioral Changes

| | | T-Stat | df | W _i | W _j | r _{rb} | p | p _{bonf} | p _{holm} |
|--|--|-------------------------------------|------|----------------|----------------|-----------------|-------|-------------------|-------------------|
| Inglorious Fruits and Vegetables - Intermarché | Mosquitoes vs Mosquitoes - Quinto Andar | 5.02 | 343 | 299.50 | 200.50 | 0.74 | < .01 | < .01 | < .01 |
| | I'm an Asshole – Tushy | 6.08 | 343 | 299.50 | 179.50 | 0.78 | < .01 | < .01 | < .01 |
| | Let's look after what we love - Sky | 1.37 | 343 | 299.50 | 272.50 | 0.23 | .17 | 1.00 | 1.00 |
| | Twiggy Full Circle | 7.58 | 343 | 299.50 | 150.00 | 0.96 | < .01 | < .01 | < .01 |
| | Cap the Tap - Reckitt Finnish | 1.29 | 343 | 299.50 | 274.00 | 0.40 | .20 | 1.00 | 1.00 |
| | Fog Point Limited Edition Vodka - Hangar 1 Vodka | 6.59 | 343 | 299.50 | 169.50 | 0.78 | < .01 | < .01 | < .01 |
| | Cold Call - Tide | 2.28 | 343 | 299.50 | 254.50 | 0.30 | .02 | .65 | .26 |
| Mosquitoes vs Mosquitoes - Quinto Andar | I'm an Asshole – Tushy | 1.06 | 343 | 200.50 | 179.50 | 0.30 | .29 | 1.00 | 1.00 |
| | Let's look after what we love - Sky | 3.65 | 343 | 200.50 | 272.50 | 0.62 | < .01 | < .01 | < .01 |
| | Twiggy Full Circle | 2.56 | 343 | 200.50 | 150.00 | 0.59 | .01 | .31 | .13 |
| | Cap the Tap - Reckitt Finnish | 3.72 | 343 | 200.50 | 274.00 | 0.62 | < .01 | < .01 | < .01 |
| | Fog Point Limited Edition Vodka - Hangar 1 Vodka | 1.57 | 343 | 200.50 | 169.50 | 0.39 | .12 | 1.00 | 1.00 |
| | Cold Call - Tide | 2.74 | 343 | 200.50 | 254.50 | 0.51 | < .01 | .18 | .09 |
| | I'm an Asshole – Tushy | Let's look after what we love - Sky | 4.71 | 343 | 179.50 | 272.50 | 0.75 | < .01 | < .01 |
| Twiggy Full Circle | | 1.49 | 343 | 179.50 | 150.00 | 0.24 | .14 | 1.00 | 1.00 |
| Cap the Tap - Reckitt Finnish | | 4.79 | 343 | 179.50 | 274.00 | 0.66 | < .01 | < .01 | < .01 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | | 0.51 | 343 | 179.50 | 169.50 | 0.12 | .61 | 1.00 | 1.00 |
| Cold Call - Tide | | 3.80 | 343 | 179.50 | 254.50 | 0.66 | < .01 | < .01 | < .01 |
| Let's look after what we love - Sky | Twiggy Full Circle | 6.21 | 343 | 272.50 | 150.00 | 0.88 | < .01 | < .01 | < .01 |
| | Cap the Tap - Reckitt Finnish | 0.08 | 343 | 272.50 | 274.00 | 0.20 | .94 | 1.00 | 1.00 |
| | Fog Point Limited Edition Vodka - Hangar 1 Vodka | 5.22 | 343 | 272.50 | 169.50 | 0.74 | < .01 | < .01 | < .01 |
| | Cold Call - Tide | 0.91 | 343 | 272.50 | 254.50 | 0.16 | .36 | 1.00 | 1.00 |

Conover's Post Hoc Comparisons - Marketing Campaigns for Behavioral Changes

| | | T-Stat | df | W _i | W _j | r _{rb} | p | p _{bonf} | p _{holm} |
|--|--|--------|-----|----------------|----------------|-----------------|-------|-------------------|-------------------|
| Twiggy Full Circle | Cap the Tap - Reckitt Finnish | 6.28 | 343 | 150.00 | 274.00 | 0.84 | < .01 | < .01 | < .01 |
| | Fog Point Limited Edition Vodka - Hangar 1 Vodka | 0.99 | 343 | 150.00 | 169.50 | 0.12 | .32 | 1.00 | 1.00 |
| | Cold Call - Tide | 5.30 | 343 | 150.00 | 254.50 | 0.75 | < .01 | < .01 | < .01 |
| Cap the Tap - Reckitt Finnish | Fog Point Limited Edition Vodka - Hangar 1 Vodka | 5.30 | 343 | 274.00 | 169.50 | 0.66 | < .01 | < .01 | < .01 |
| | Cold Call - Tide | 0.99 | 343 | 274.00 | 254.50 | 0.07 | .32 | 1.00 | 1.00 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | Cold Call - Tide | 4.31 | 343 | 169.50 | 254.50 | 0.70 | < .01 | < .01 | < .01 |

Note. Grouped by subject.

Note. Rank-biserial correlation based on individual signed-rank tests.

Specifically, *Inglorious Fruits & Vegetables* by Intermarché scored higher than *Mosquitoes vs Mosquitoes* by Quinto Andar ($T(343) = 5.02$, $r_{rb} = .74$, $p_{holm} < .01$), *I'm an Asshole* by Tushy ($T(343) = 6.08$, $r_{rb} = .78$, $p_{holm} < .01$), *Twiggy Full Circle* by eBay ($T(343) = 7.58$, $r_{rb} = .96$, $p_{holm} < .01$), and *Fog Point Limited Edition Vodka* by Hangar 1 Vodka ($T(343) = 6.59$, $r_{rb} = .78$, $p_{holm} < .01$).

Let's look after what we love by Sky outperformed *Mosquitoes vs Mosquitoes* by Quinto Andar ($T(343) = 3.65$, $r_{rb} = .62$, $p_{holm} < .01$), *I'm an Asshole* by Tushy ($T(343) = 4.71$, $r_{rb} = .75$, $p_{holm} < .01$), *Twiggy Full Circle* by eBay ($T(343) = 6.21$, $r_{rb} = .84$, $p_{holm} < .01$), and *Fog Point Limited Edition Vodka* by Hangar 1 Vodka ($T(343) = 5.22$, $r_{rb} = .74$, $p_{holm} < .01$).

Cap the Tap by Reckitt Finish scored higher than *Mosquitoes vs Mosquitoes* by Quinto Andar ($T(343) = 3.72$, $r_{rb} = .62$, $p_{holm} < .01$), *I'm an Asshole* by Tushy ($T(343) = 4.79$, $r_{rb} = .66$, $p_{holm} < .01$), *Twiggy Full Circle* by eBay ($T(343) = 6.28$, $r_{rb} = .84$, $p_{holm} < .01$), and *Fog Point Limited Edition Vodka* by Hangar 1 Vodka ($T(343) = 5.30$, $r_{rb} = .66$, $p_{holm} < .01$).

Finally, *Cold Call* by Tide outperformed *I'm an Asshole* by Tushy ($T(343) = 3.80$, $r_{rb} = .66$, $p_{holm} < .01$), *Twiggy Full Circle* by eBay ($T(343) = 5.30$, $r_{rb} = .75$, $p_{holm} < .01$), and *Fog Point Limited Edition Vodka* by Hangar 1 Vodka ($T(343) = 4.31$, $r_{rb} = .70$, $p_{holm} < .01$). All other pairwise differences were not significant after Holm correction.

Interpretively, every significant effect showed a large rank-biserial correlation ($r_{rb} \geq .62$), and all results remained significant after Holm correction ($\alpha = .05$; all $p_{holm} < .01$).

Descriptively, the willingness to adopt promoted behaviors formed a distinct “top cluster” (*Inglorious Fruits and Vegetables, Let’s Look After What We Love, Cold Call, Cap the Tap*) and a “bottom cluster” (*Twiggy Full Circle, Fog Point Vodka, I’m an Asshole*), with *Mosquitoes vs Mosquitoes* sitting mid-pack. This Conover post-hoc tests with Holm correction confirmed that members of the top cluster outperformed several lower-tier campaigns, whereas pairwise differences within the top cluster were not reliably separable after multiplicity control, consistent with a set of comparably persuasive marketing executions.

4.2.1.5 WHICH EMOTIONS PREDICT ADOPTION?

To assess the emotional and behavioral impact of each campaign, participants rated their willingness to adopt the promoted behavior and reported their emotional responses using both intensity scales and forced-choice primary emotion selections. These measures were designed to capture not only the degree of behavioral intention but also the affective structure underlying that intention.

Prior research suggests that emotions such as joy, trust, and anticipation—particularly when paired with credible messaging and tangible benefits—can enhance persuasive efficacy and increase adoption likelihood (Cialdini, 2003; Nabi, 2015; Sheeran, 2002). Accordingly, the present analysis focused on identifying which emotions were most strongly associated with willingness to adopt promoted behavior, and whether the campaigns successfully elicited their intended emotional profiles.

This summary table consolidates the NRC emotions ratings across campaigns by putting the three signals in one view: (i) the mean consumer rating for each basic emotion (color-scaled so deeper red = higher average, green = lower), (ii) the emotion consumers most often selected in the single-choice item (the “selected” column), and (iii) the a-priori “dominant” label from the NRC lexicon used to tag the marketing creatives.

Table 14 Dominant-emotion agreement across sources (consumer ratings, consumer selection, NRC) with emotion-intensity heatmap.

| Campaigns/Emotions rated by consumers | Emotion Intensity (Mean Rating) | | | | | | | | | Consumers' dominant emotion - rated | Consumers' dominant emotion - selected | NRC dominant emotion | Comparison (consumers' rated vs NRC) | Comparison (consumers' selected vs NRC) | Comparison (consumers' rated vs selected) |
|--|---------------------------------|--------------|---------|------|------|---------|----------|-------|----------|-------------------------------------|--|----------------------|--------------------------------------|---|---|
| | Anger | Anticipation | Disgust | Fear | Joy | Sadness | Surprise | Trust | Trust | | | | | | |
| Cap the Tap - Reckitt Finish | 1.28 | 3.32 | 1.30 | 1.32 | 4.06 | 1.66 | 4.12 | 4.26 | Trust | Joy | Sadness | Different | Different | Different | |
| Cold Call - Tide | 1.24 | 3.46 | 1.26 | 1.18 | 4.22 | 1.12 | 3.36 | 4.44 | Trust | Joy | Trust | Same | Different | Different | |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | 1.28 | 2.96 | 1.38 | 1.42 | 3.44 | 1.52 | 4.26 | 3.62 | Surprise | Surprise | Surprise | Same | Same | Same | |
| I'm an Asshole - Tushy | 1.50 | 2.76 | 3.14 | 1.36 | 3.24 | 1.34 | 4.44 | 3.64 | Surprise | Disgust | Disgust | Different | Same | Different | |
| Inglorious Fruits and Vegetables - Intermarche | 1.44 | 3.36 | 1.54 | 1.34 | 4.60 | 1.60 | 4.20 | 4.84 | Trust | Joy | Anticipation | Different | Different | Different | |
| Let's look after what we love - Sky | 1.56 | 3.30 | 1.56 | 1.80 | 3.78 | 2.14 | 2.60 | 3.96 | Trust | Joy | Fear | Different | Different | Different | |
| Mosquitoes vs Mosquitoes - Quinto Andar | 1.50 | 2.78 | 1.98 | 2.22 | 3.40 | 2.14 | 4.38 | 4.12 | Surprise | Surprise | Anger | Different | Different | Same | |
| Twiggy Full Circle | 1.38 | 2.46 | 1.36 | 1.20 | 3.70 | 1.38 | 2.98 | 3.50 | Joy | Joy | Joy | Same | Same | Same | |

For each campaign, the highest means in the rating block is taken as the consumers’ dominant emotion (rated), and the modal response on the single-choice item is the consumers’ dominant emotion (selected). The three comparison columns then indicate whether consumers’ ratings and/or selections converge with the NRC label for that campaign. Alignment (“Same”) supports the intended emotional positioning; non-alignment flags an interpretable shift in how viewers experience the ad (e.g., Trust vs. Joy), which we analyzed previously.

Table 15 Descriptives with bootstrapped CIs for means (per campaign)

| | Inglorious Fruits and Vegetable (Anticipation) | Mosquitoes vs Mosquitoes (Anger) | I’m an Asshole (Disgust) | Let’s look after what we love (Fear) | Twiggy Full Circle (Joy) | Cap the Tap (Sadness) | Fog Point Limited Edition Vodka - (Surprise) | Cold Call (Trust) |
|-------------------|--|----------------------------------|--------------------------|--------------------------------------|--------------------------|-----------------------|--|-------------------|
| Median | 6.00 | 5.00 | 4.50 | 6.00 | 4.00 | 6.00 | 4.00 | 5.00 |
| Mean | 5.60 | 4.40 | 3.94 | 5.42 | 3.50 | 5.14 | 3.76 | 5.18 |
| 95% CI Mean Lower | 5.18 | 3.90 | 3.38 | 5.10 | 2.90 | 4.68 | 3.18 | 4.74 |
| 95% CI Mean Upper | 5.96 | 4.86 | 4.46 | 5.72 | 4.10 | 5.58 | 4.34 | 5.60 |
| Std. Deviation | 1.40 | 1.80 | 1.94 | 1.18 | 2.15 | 1.63 | 2.09 | 1.66 |
| Minimum | 1.00 | 1.00 | 1.00 | 3.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Maximum | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 | 7.00 |

4.2.1.5.1 INGLORIOUS FRUITS AND VEGETABLES – INTERMARCHÉ

Participants reported the highest willingness to adopt the behavior promoted in this campaign among all campaigns ($M \approx 5.60$ on a 1–7 scale).

Table 16 Emotions vs. Adoption Likelihood—Inglorious Fruits and Vegetables - Intermarché (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | P | Lower 95% CI | Upper 95% CI |
|--|---|--------------|-------------------|-------|-----------------|-----------------|
| Inglorious Fruits and Vegetables - Intermarché | - | Anger | -0.05 | .74 | -0.28 | 0.21 |
| Inglorious Fruits and Vegetables - Intermarché | - | Fear | 0.06 | .69 | -0.17 | 0.29 |
| Inglorious Fruits and Vegetables - Intermarché | - | Anticipation | 0.37 | < .01 | 0.07 | 0.61 |
| Inglorious Fruits and Vegetables - Intermarché | - | Trust | 0.58 | < .01 | 0.33 | 0.77 |
| Inglorious Fruits and Vegetables - Intermarché | - | Surprise | 0.45 | < .01 | 0.15 | 0.68 |
| Inglorious Fruits and Vegetables - Intermarché | - | Sadness | 0.02 | .87 | -0.23 | 0.29 |
| Inglorious Fruits and Vegetables - Intermarché | - | Joy | 0.62 | < .01 | 0.40 | 0.77 |
| Inglorious Fruits and Vegetables - Intermarché | - | Disgust | -0.14 | .34 | -0.39 | 0.16 |

Note. Confidence intervals based on 2000 bootstrap replicates.

The campaign's emotion–willingness to adopt structure was clear and robust. Spearman correlations with bootstrapped 95% confidence intervals (2,000 resamples) indicated strong positive associations for Joy ($\rho = .62, p < .01, 95\% \text{ CI } [.40, .77]$) and Trust ($\rho = .58, p < .01, 95\% \text{ CI } [.33, .77]$), with Surprise ($\rho = .45, p < .01, 95\% \text{ CI } [.15, .68]$) and Anticipation ($\rho = .37, p < .01, 95\% \text{ CI } [.07, .61]$) providing additional support. Disgust, Anger, Fear, and Sadness were negligible or null. This profile—high trust and joy, moderate surprise/anticipation, minimal aversive affect—maps onto a credibility-and-benefits framing that reduces perceived risk while highlighting feasible gains, a configuration repeatedly linked to intention formation and follow-through in the

sustainability domain (Cialdini, 2003; Sheeran, 2002). The manipulation check showed that the intended positive affective palette was indeed experienced: primary-emotion choices concentrated on joy/surprise rather than on aversive states.

4.2.1.5.2 MOSQUITOES VS MOSQUITOES - QUINTO ANDAR

Table 17 Emotions vs. Adoption Likelihood—Mosquitoes vs Mosquitoes - Quinto Andar (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|--|---|--------------|-------------------|-------|-----------------|-----------------|
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Anger | 0.03 | .83 | -0.24 | 0.32 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Fear | 0.22 | .13 | -0.06 | 0.47 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Anticipation | 0.37 | < .01 | 0.10 | 0.61 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Trust | 0.49 | < .01 | 0.19 | 0.72 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Surprise | 0.46 | < .01 | 0.18 | 0.71 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Sadness | 0.09 | .55 | -0.19 | 0.36 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Joy | 0.54 | < .01 | 0.33 | 0.71 |
| Mosquitoes vs Mosquitoes - Quinto Andar | - | Disgust | -0.20 | .16 | -0.44 | 0.07 |

Note. Confidence intervals based on 2000 bootstrap replicates.

For *Mosquitoes vs Mosquitoes – Quinto Andar*, willingness sat in the mid-range ($M \approx 4.40$), and the dominant positive predictor was Joy ($\rho = .54$, $p < .01$, 95% CI [.33, .71]), followed by Trust ($\rho = .49$, $p < .01$, 95% CI [.19, .72]) and Surprise ($\rho = .46$, $p < .01$, 95% CI [.18, .71]); Anticipation was also positively associated ($\rho = .37$, $p < .01$, 95% CI [.10, .61]). Fear, Sadness, and Anger showed small, non-significant relationships, and Disgust trended negative but did not reach significance ($\rho = -.20$, $p = .16$). The affective profile therefore skews positive/approach-oriented, with joy most closely tracking adoption likelihood and trust and surprise providing additional lift. This suggests the marketing

campaign creative’s persuasive leverage comes less from aversive states and more from positive affect and credibility, consistent with evidence that approach-oriented emotions (joy, enthusiasm) and perceived legitimacy/efficacy (trust) are more tightly tied to pro-environmental intentions than avoidance emotions when strong threat/efficacy structures are not foregrounded.

4.2.1.5.3 I'M AN ASSHOLE – TUSHY

For *I'm an Asshole – TUSHY*, average willingness was comparatively low ($M \approx 3.94$), yet the emotion–willingness profile is strongly positive when the ad elicits positive emotions. The dominant emotion is Joy ($\rho = .71, p < .01, 95\% \text{ CI } [.53, .84]$), one of the largest joy to willingness associations in the set. Trust is also a robust correlation ($\rho = .62, p < .01, 95\% \text{ CI } [.40, .78]$), and Anticipation shows a moderate positive association ($\rho = .42, p < .01, 95\% \text{ CI } [.15, .65]$). Surprise is smaller but still reliable ($\rho = .34, p = .02, 95\% \text{ CI } [.05, .60]$). By contrast, Disgust trends negative ($\rho = -.25, p = .08, 95\% \text{ CI } [-.52, .05]$), and Anger, Fear, and Sadness are negligible and non-significant ($|\rho| \leq .08; ps \geq .60$).

Table 18 Emotions vs. Adoption Likelihood—*I'm an Asshole - Tushy* (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|------------------------|---|--------------|----------------|-------|--------------|--------------|
| I'm an Asshole - Tushy | - | Anger | 0.04 | .76 | -0.24 | 0.33 |
| I'm an Asshole - Tushy | - | Fear | -0.05 | .75 | -0.30 | 0.19 |
| I'm an Asshole - Tushy | - | Anticipation | 0.42 | < .01 | 0.15 | 0.65 |
| I'm an Asshole - Tushy | - | Trust | 0.62 | < .01 | 0.40 | 0.78 |
| I'm an Asshole - Tushy | - | Surprise | 0.34 | .02 | 0.05 | 0.60 |
| I'm an Asshole - Tushy | - | Sadness | 0.08 | .60 | -0.18 | 0.33 |
| I'm an Asshole - Tushy | - | Joy | 0.71 | < .01 | 0.53 | 0.84 |
| I'm an Asshole - Tushy | - | Disgust | -0.25 | .08 | -0.52 | 0.05 |

Note. Confidence intervals based on 2000 bootstrap replicates.

As a result, this campaign video appears mixed-valence: its humor and playfulness can generate substantial joy (and anticipation) that lift willingness to adopt the promoted behavior, but disgust cues for a nontrivial subset of viewers likely mute average persuasiveness—especially when disgust is not offset by clear benefits and credibility. The practical implication is to preserve the humorous/positive tone while reducing or reframing disgust-eliciting elements and reinforcing trust signals (e.g., efficacy, hygiene benefits, testimonials), which the data indicates are the most consequential levers for prompting stated adoption in this execution.

4.2.1.5.4 LET'S LOOK AFTER WHAT WE LOVE – SKY

For *Let's look after what we love* by Sky, average willingness was high ($M \approx 5.42$), and the dominant positive predictor is Trust ($\beta = .51, p < .01, 95\% \text{ CI } [.26, .71]$). Surprise also shows a sizeable positive association ($\beta = .43, p < .01, 95\% \text{ CI } [.19, .63]$), with Joy ($\beta = .38, p < .01, 95\% \text{ CI } [.09, .62]$) and Anticipation ($\beta = .37, p < .01, 95\% \text{ CI } [.09, .60]$) providing additional lift. In contrast, Anger ($\beta = .20, p = .15, 95\% \text{ CI } [-.07, .46]$) and Sadness ($\beta = .20, p = .17, 95\% \text{ CI } [-.09, .47]$) are small and non-significant, while Fear ($\beta = .03, p = .81, 95\% \text{ CI } [-.25, .31]$) and Disgust ($\beta = .01, p = .92, 95\% \text{ CI } [-.30, .34]$) are essentially null. The affective profile is therefore unambiguously positivity-oriented: willingness rises when this sustainability video elicits credibility/assurance (trust) along with uplifting, future-facing emotions (surprise, joy, anticipation), and does not benefit from threat-based or aversive cues. Practically, this suggests the persuasion mechanism here is stewardship

framed as feasible and rewarding—best reinforced by trust-building claims (clear benefits, credible messengers, efficacy information) and by maintaining the ad’s warm, hopeful tone rather than adding fear or anger elements that the data indicate are unhelpful.

Table 19 Emotions vs. Adoption Likelihood—Let’s look after what we love - Sky (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|-------------------------------------|---|--------------|----------------|-------|--------------|--------------|
| Let's look after what we love - Sky | - | Anger | 0.21 | .15 | -0.07 | 0.46 |
| Let's look after what we love - Sky | - | Fear | 0.03 | .81 | -0.25 | 0.31 |
| Let's look after what we love - Sky | - | Anticipation | 0.37 | < .01 | 0.09 | 0.60 |
| Let's look after what we love - Sky | - | Trust | 0.51 | < .01 | 0.26 | 0.71 |
| Let's look after what we love - Sky | - | Surprise | 0.43 | < .01 | 0.19 | 0.63 |
| Let's look after what we love - Sky | - | Sadness | 0.20 | .17 | -0.09 | 0.47 |
| Let's look after what we love - Sky | - | Joy | 0.38 | < .01 | 0.09 | 0.62 |
| Let's look after what we love - Sky | - | Disgust | 0.01 | .92 | -0.30 | 0.34 |

Note. Confidence intervals based on 2000 bootstrap replicates.

4.2.1.5.5 TWIGGY FULL CIRCLE – EBAY

With *Twiggy Full Circle*, average willingness was the lowest in the set ($M \approx 3.50$), and the correlation profile indicates that willingness rises primarily when the ad elicits Trust, with little help from aversive emotions.

Table 20 Emotions vs. Adoption Likelihood—Twiggy Full Circle (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|--------------------|---|--------------|------------------------|-------|--------------|--------------|
| Twiggy Full Circle | - | Anger | -8.27×10^{-3} | .95 | -0.28 | 0.26 |
| Twiggy Full Circle | - | Fear | 1.73×10^{-3} | .99 | -0.29 | 0.29 |
| Twiggy Full Circle | - | Anticipation | 0.22 | .12 | -0.04 | 0.50 |
| Twiggy Full Circle | - | Trust | 0.38 | < .01 | 0.14 | 0.60 |
| Twiggy Full Circle | - | Surprise | 0.28 | .05 | -0.02 | 0.55 |
| Twiggy Full Circle | - | Sadness | 0.08 | .60 | -0.19 | 0.33 |
| Twiggy Full Circle | - | Joy | 0.25 | .08 | -0.02 | 0.50 |
| Twiggy Full Circle | - | Disgust | 0.10 | .49 | -0.19 | 0.38 |

Note. Confidence intervals based on 2000 bootstrap replicates.

Trust shows the only clearly reliable association with adoption likelihood ($\rho = .38$, $p < .01$, 95% CI [.14, .60]). Surprise is small-to-moderate and borderline ($\rho = .28$, $p = .05$, 95% CI [.02, .55]), while Anticipation and Joy are positive but not dependable in this sample (Anticipation: $\rho = .22$, $p = .12$, 95% CI [-0.04, .50]; Joy: $\rho = .25$, $p = .08$, 95% CI [-0.02, .50]). The remaining affects are effectively null: Anger ($\rho = -.01$, $p = .95$, 95% CI [-0.28, .26]), Fear ($\rho \approx .00$, $p = .99$, 95% CI [-0.29, .29]), Sadness ($\rho = .08$, $p = .60$, 95% CI [-0.19, .33]), and Disgust ($\rho = .10$, $p = .49$, 95% CI [-0.19, .38]). Altogether, the ad appears underpowered on the very emotions that move willingness: when viewers do feel trust—and, to a lesser extent, surprise—their stated likelihood increases, but these states are not elicited strongly or consistently enough to lift the overall mean. The practical implication is to strengthen credibility and clarity (e.g., clear messages, solid efficacy claims, diagnostic

proof points, credible messengers) and streamline the narrative so that surprise opens the message but is quickly converted into assurance and clear benefits (trust). Threat or aversive cues in this context are unlikely to help, as those emotions are unrelated to willingness in this execution.

4.2.1.5.6 CAP THE TAP – RECKITT FINISH

For *Cap the Tap* by Reckitt Finish, average willingness was high ($M \approx 5.14$), and the emotion–willingness profile is decisively approach-oriented. The strongest predictor is Trust ($\rho = .59$, $p < .01$, 95% CI [.38, .73]), closely followed by Joy ($\rho = .55$, $p < .01$, 95% CI [.33, .73]) and Anticipation ($\rho = .49$, $p < .01$, 95% CI [.25, .68]). Surprise also contributes to a reliable, though smaller, positive association ($\rho = .38$, $p < .01$, 95% CI [.14, .61]). In contrast, the aversive emotions are null: Anger ($\rho = .09$, $p = .55$, 95% CI [-.18, .32]), Fear ($\rho = -.02$, $p = .91$, 95% CI [-.23, .19]), Sadness ($\rho = .05$, $p = .73$, 95% CI [-.21, .30]), and Disgust ($\rho = .10$, $p = .49$, 95% CI [-.16, .33]) show no reliable relationships with willingness. To conclude, the ad appears to persuade by making the recommended water-saving action feel credible, easy, and rewarding—a combination indexed by high trust, strong joy, and forward-looking anticipation, with surprise functioning as an attention-opener rather than a driver on its own. Practically, this pattern argues for preserving the upbeat, efficacy-rich framing (clear benefits, simple steps, credible messenger or proof) and avoiding fear/anger/disgust cues, which the data indicate neither help nor hurt but offer no incremental lift over the positive emotions that are doing the persuasion here.

Table 21 Emotions vs. Adoption Likelihood— Cap the Tap - Reckitt Finish (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|---------------------------------|---|--------------|-------------------|-------|-----------------|-----------------|
| Cap the Tap - Reckitt Finish | - | Anger | 0.09 | .55 | -0.18 | 0.32 |
| Cap the Tap - Reckitt Finish | - | Fear | -0.02 | .91 | -0.23 | 0.19 |
| Cap the Tap - Reckitt Finish | - | Anticipation | 0.49 | < .01 | 0.25 | 0.68 |
| Cap the Tap - Reckitt Finish | - | Trust | 0.59 | < .01 | 0.38 | 0.73 |
| Cap the Tap - Reckitt Finish | - | Surprise | 0.38 | < .01 | 0.14 | 0.61 |
| Cap the Tap - Reckitt Finish | - | Sadness | 0.05 | .73 | -0.21 | 0.30 |
| Cap the Tap - Reckitt Finish | - | Joy | 0.55 | < .01 | 0.33 | 0.73 |
| Cap the Tap - Reckitt Finish | - | Disgust | 0.10 | .49 | -0.16 | 0.33 |

Note. Confidence intervals based on 2000 bootstrap replicates.

4.2.1.5.7 FOG POINT LIMITED EDITION VODKA - HANGAR 1 VODKA

For *Fog Point Limited Edition Vodka* by Hangar 1 Vodka, average willingness was low ($M \approx 3.76$), and the correlation profile indicates that willingness increases chiefly when the ad elicits anticipatory curiosity and positive affect, while aversive reactions depress it.

Table 22 Emotions vs. Adoption Likelihood— Fog Point Limited Edition Vodka - Hangar 1 Vodka (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|---|---|--------------|-------------------|-------|-----------------|-----------------------|
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Anger | -0.27 | .06 | -0.48 | 4.31×10^{-3} |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Fear | -0.10 | .48 | -0.34 | 0.18 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Anticipation | 0.53 | < .01 | 0.28 | 0.73 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Trust | 0.39 | < .01 | 0.11 | 0.62 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Surprise | 0.43 | < .01 | 0.18 | 0.64 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Sadness | -0.15 | .29 | -0.38 | 0.11 |

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|---|---|---------|----------------|-------|--------------|--------------|
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Joy | 0.50 | < .01 | 0.26 | 0.70 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | - | Disgust | -0.33 | .02 | -0.53 | -0.07 |

Note. Confidence intervals based on 2000 bootstrap replicates.

The dominant predictor is Anticipation ($\rho = .53$, $p < .01$, 95% CI [.28, .73]), closely followed by Joy ($\rho = .50$, $p < .01$, 95% CI [.26, .70]). Surprise provides additional lift ($\rho = .43$, $p < .01$, 95% CI [.18, .64]) and Trust is a moderate, reliable correlation ($\rho = .39$, $p < .01$, 95% CI [.11, .62]). In contrast, Disgust is a significant negative predictor ($\rho = -.33$, $p = .02$, 95% CI [-.53, -.07]), and Anger trends negative ($\rho = -.27$, $p = .06$, 95% CI [-.48, .00]), while Fear ($\rho = -.10$, $p = .48$, 95% CI [-.34, .18]) and Sadness ($\rho = -.15$, $p = .29$, 95% CI [-.38, .11]) are null. Overall, the ad appears to work as far as it sparks anticipation and surprise, and willingness rises further when viewers also feel joy and trust; however, disgust cues materially undermine adoption intent, and anger contributes additional drag. Practically, the data argue for preserving the counter-intuitive “fog-to-vodka” intrigue that generates anticipation, while dialing down or reframing disgust-eliciting elements and strengthening credibility signals (clear benefits, process transparency, credible messengers) to convert curiosity into assured, positive willingness.

4.2.1.5.8 COLD CALL – TIDE

For *Cold Call – Tide*, average willingness was high ($M \approx 5.18$), and the correlation profile shows that positive emotions map most closely onto adoption.

Table 23 Emotions vs. Adoption Likelihood—Cold Call - Tide (Spearman ρ ; 95% bootstrapped CIs).

Spearman's Correlations

| | | | Spearman's rho | p | Lower 95% CI | Upper 95% CI |
|------------------|---|--------------|----------------|-------|--------------|--------------|
| Cold Call - Tide | - | Anger | -0.14 | .34 | -0.39 | 0.13 |
| Cold Call - Tide | - | Fear | 0.04 | .80 | -0.17 | 0.25 |
| Cold Call - Tide | - | Anticipation | 0.44 | < .01 | 0.18 | 0.68 |
| Cold Call - Tide | - | Trust | 0.41 | < .01 | 0.13 | 0.64 |
| Cold Call - Tide | - | Surprise | 0.41 | < .01 | 0.15 | 0.62 |
| Cold Call - Tide | - | Sadness | -0.08 | .57 | -0.25 | 0.08 |
| Cold Call - Tide | - | Joy | 0.45 | < .01 | 0.18 | 0.67 |
| Cold Call - Tide | - | Disgust | -0.05 | .71 | -0.34 | 0.24 |

Note. Confidence intervals based on 2000 bootstrap replicates.

The dominant positive predictor is Joy ($\rho = .45$, $p < .01$, 95% bootstrapped CI [.18, .67]), with a tight cluster of similarly strong associations from Anticipation ($\rho = .44$, $p < .01$, 95% CI [.18, .68]), Trust ($\rho = .41$, $p < .01$, 95% CI [.13, .64]), and Surprise ($\rho = .41$, $p < .01$, 95% CI [.15, .62]). In contrast, the negative emotions are non-predictive: Anger ($\rho = -.14$, $p = .34$, 95% CI [-.39, .13]), Sadness ($\rho = -.08$, $p = .57$, 95% CI [-.25, .08]), Disgust ($\rho = -.05$, $p = .71$, 95% CI [-.34, .24]), and Fear ($\rho = .04$, $p = .80$, 95% CI [-.17, .25]) all have confidence intervals spanning zero. The affective mechanism therefore appears to be positive motivation anchored in credibility and forward-looking interest: willingness to adopt the promoted sustainable behavior rises when the ad makes the target behavior feel rewarding (joy), immediately doable (anticipation), and trustworthy, with surprise likely serving as an attention opener rather than a stand-alone driver. Practically, the data support keeping the upbeat, efficacy-rich framing—clear benefits, simple steps, credible messenger—and eschewing fear/anger/disgust cues, which neither help nor hurt but provide no incremental lift beyond the positive emotions that are carrying persuasion in this execution.

Table 24 Emotion–adoption associations by campaign (Spearman ρ) and cross-campaign means.

| Campaign | Anger | Fear | Anticipation | Trust | Surprise | Sadness | Joy | Disgust |
|-------------------------------------|-------|-------|--------------|-------|----------|---------|------|---------|
| Inglorious Fruits & Vegetables | -0.05 | 0.06 | 0.37 | 0.58 | 0.45 | 0.02 | 0.62 | -0.14 |
| Mosquitoes vs Mosquitoes | 0.03 | 0.22 | 0.37 | 0.49 | 0.46 | 0.09 | 0.54 | -0.20 |
| I'm an Asshole – Tushy | 0.04 | -0.05 | 0.42 | 0.62 | 0.34 | 0.08 | 0.71 | -0.25 |
| Let's look after what we love – Sky | 0.21 | 0.03 | 0.37 | 0.51 | 0.43 | 0.2 | 0.38 | 0.01 |
| Twiggy Full Circle | -0.01 | 0 | 0.22 | 0.38 | 0.28 | 0.08 | 0.25 | 0.1 |
| Cap the Tap – Reckitt Finish | 0.09 | -0.02 | 0.49 | 0.59 | 0.38 | 0.05 | 0.55 | 0.1 |
| Fog Point Vodka – Hangar 1 | -0.27 | -0.10 | 0.53 | 0.39 | 0.43 | -0.15 | 0.5 | -0.33 |
| Cold Call – Tide | -0.14 | 0.04 | 0.44 | 0.41 | 0.41 | -0.08 | 0.45 | -0.05 |
| Mean | -0.01 | 0.02 | 0.40 | 0.50 | 0.40 | 0.04 | 0.50 | -0.10 |

Aggregating across campaigns, the correlational hierarchy was stable: Trust (average $\rho \approx .50$) and Joy ($\approx .50$) were the most reliable positive correlations of willingness, followed by Anticipation ($\approx .40$) and Surprise ($\approx .4$). Disgust was the most consistent negative tendency ($\approx -.1$), with Anger slightly negative. These regularities reinforce a broad mechanism: attention-getting elements (surprise/anticipation) facilitate entry into the message, but conversion to willingness hinges on credibility and positive affect (trust/joy). The pattern fits the previously mentioned large persuasion and behavior-change literature in which perceived legitimacy and efficacy, coupled with approach-oriented emotional tone, foster intentions and behavior, whereas aversive states tend to prompt distancing unless efficacy is simultaneously high (Cialdini, 2003; Sheeran, 2002; Witte & Allen, 2000).

4.2.1.6 WHO IS MORE PERSUADABLE?

To identify who, on average, was more receptive to the behavioral appeals, a respondent-level index of overall willingness (AdoptionMean, the mean of the eight 1–7 willingness ratings per person) was compared across key background variables. The focal

contrast—recent sustainability behavior change (Yes vs. No)—showed a meaningful and directionally consistent gap favoring those who had recently changed or adopted pro-environmental behavior. Participants reporting a recent change (n = 28) scored M = 4.88, SD = 1.06, whereas those who had not (n = 22) scored M = 4.28, SD = 1.06.

Table 25 Group Descriptives in Recent Sustainability Behavior Change – General (N = 50)

Group Descriptives

| | Group | N | Mean | SD | SE | Coefficient of variation |
|--------------|-------|----|------|------|------|--------------------------|
| AdoptionMean | No | 22 | 4.28 | 1.06 | 0.23 | 0.25 |
| | Yes | 28 | 4.88 | 1.06 | 0.20 | 0.22 |

Table 26 Group Differences in Overall Adoption Willingness by Recent Sustainability Behavior Change (N = 50)

Independent Samples T-Test

| | Test | Statistic | df | p | Effect Size | SE Effect Size | 95% CI for Effect Size | |
|--------------|--------------|-----------|----|-----|-------------|----------------|------------------------|-------|
| | | | | | | | Lower | Upper |
| AdoptionMean | Student | -1.97 | 48 | .05 | -0.56 | 0.30 | -1.13 | 0.01 |
| | Mann-Whitney | 195.50 | | .03 | 0.37 | 0.16 | 0.06 | 0.61 |

Note. For the Student t-test, effect size is given by Cohen's d. For the Mann-Whitney test, effect size is given by the rank biserial correlation.

An independent-samples t-test returned $t(48) = -1.97, p = .05, d = -0.56$, with a 95% CI for d of $[-1.13, 0.01]$. The negative sign for t and d reflects the group coding rather than the direction of the substantive effect. Descriptives make clear that the Yes group is higher by 0.60 points. Because willingness ratings are ordinal and may deviate from normality, a distribution-free check was also conducted: the Mann-Whitney test was significant, $U = 195.50, p = .03$, with a rank-biserial correlation $r_{rb} = .37$ and a 95% CI of $[.06, .61]$, indicating a moderate nonparametric effect.

Interpreted together, the parametric and nonparametric results converge on the conclusion that respondents already “in motion” on sustainability are more open to adjacent behavior change appeals ($\Delta = 0.60$ on the 1–7 scale). This pattern is theoretically consonant with the Theory of Planned Behavior, which links stronger intentions to recent action and perceived control in the same domain (Ajzen, 1991), and with evidence that proximal action strengthens self-perceptions/self-efficacy and implementation readiness, producing higher intention–behavior consistency (Bandura, 1977, 1982; Sheeran, 2002).

Table 27 Group Descriptives in Recent Sustainability Behavior Change – Sex (N = 50)

Group Descriptives

| | Group | N | Mean | SD | SE | Coefficient of variation | Mean Rank | Sum Rank |
|--------------|--------|----|------|------|------|--------------------------|-----------|----------|
| AdoptionMean | Female | 30 | 4.55 | 1.10 | 0.20 | 0.24 | 24.50 | 735.00 |
| | Male | 20 | 4.71 | 1.10 | 0.25 | 0.23 | 27.00 | 540.00 |

Table 28 Group Differences in Overall Adoption Willingness by Sex (N = 50)

Independent Samples T-Test

| | Test | Statistic | df | p | Effect Size | SE Effect Size | 95% CI for Effect Size | |
|--------------|--------------|-----------|----|-----|-------------|----------------|------------------------|-------|
| | | | | | | | Lower | Upper |
| AdoptionMean | Student | -0.50 | 48 | .62 | -0.14 | 0.29 | -0.71 | 0.42 |
| | Mann-Whitney | 270.00 | | .56 | 0.10 | 0.17 | -0.23 | 0.41 |

Note. For the Student t-test, effect size is given by Cohen's d. For the Mann-Whitney test, effect size is given by the rank biserial correlation.

By contrast, sex did not differentiate overall willingness. Means were very similar for females (n = 30, M = 4.55, SD = 1.10) and males (n = 20, M = 4.71, SD = 1.10), with $t(48) = -0.50$, $p = .62$, $d = -0.14$; $U = 270.00$, $p = .56$, $r_{rb} = .10$. Point estimates and intervals exclude effects of meaningful magnitude: the 95% CI for d spans $[-0.71, 0.42]$, indicating

that any average difference by sex, if present in the population, is small and could favor either group.

Table 29 Group Descriptives in Recent Sustainability Behavior Change – Age (N = 50)

ANOVA - AdoptionMean

| Cases | Sum of Squares | df | Mean Square | F | p |
|-------------------|----------------|----|-------------|------|-----|
| What is your age? | 2.43 | 5 | 0.49 | 0.38 | .86 |
| Residuals | 55.90 | 44 | 1.27 | | |

Note. Type III Sum of Squares

Table 30 Group Differences in Overall Adoption Willingness by Age (N = 50)

Descriptives - AdoptionMean

| What is your age? | N | Mean | SD | SE | Coefficient of variation |
|-------------------|----|------|------|------|--------------------------|
| 18-24 | 3 | 3.88 | 1.00 | 0.58 | 0.26 |
| 25-34 | 13 | 4.83 | 1.24 | 0.34 | 0.26 |
| 35-44 | 10 | 4.50 | 0.93 | 0.29 | 0.21 |
| 45-54 | 14 | 4.62 | 1.18 | 0.31 | 0.25 |
| 55-64 | 7 | 4.71 | 1.14 | 0.43 | 0.24 |
| 65 and older | 3 | 4.63 | 1.02 | 0.59 | 0.22 |

Similarly, age did not predict overall willingness among respondents. A six-level ANOVA comparing 18–24 (n = 3), 25–34 (n = 13), 35–44 (n = 10), 45–54 (n = 14), 55–64 (n = 7), and 65+ (n = 3) yielded $F(5, 44) = 0.38, p = .86$. Descriptive means ranged from 3.88 (18–24; n = 3) to 4.83 (25–34; n = 13) with overlapping standard errors. The smallest and oldest brackets have very small cell sizes, so even if the omnibus had been marginal, those strata would not support stable post-hoc contrasts; however, the non-significant omnibus indicates that age-related differences, if they exist in the broader population, are not detectable here.

To conclude, the only robust between-group pattern is the recent change and willingness to change or adopt: people who have acted recently on sustainability report higher overall willingness to adopt additional sustainable behaviors promoted in the campaigns. That result resonates with a cumulative literature showing that proximal action, higher perceived control, and identity-consistent self-inference reinforce intentions for related behaviors (Ajzen, 1991; Bandura, 1982; Sheeran, 2002). It also suggests a practical targeting implication: audiences with recent success experiences (e.g., having just started recycling, reduced water use, or cutting food waste) may be especially responsive to additional calls to action, whereas broad demographic segmentation by sex or age is unlikely to yield meaningful lift in this context.

4.2.1.7 MOST IMPRESSIVE AND MOST INFLUENTIAL CAMPAIGNS

The single-choice item asking which marketing campaign would be most likely to change something respondents produced a clear, ordered pattern.

Table 31 Frequency of selection of campaigns consumers think would change something they do.

Frequency for “Which campaign would most likely change something you do?”

| Which campaign would change something you do? | Frequency | Percent | Valid Percent | Cumulative Percent |
|--|-----------|---------|---------------|--------------------|
| Cap the Tap - Reckitt Finnish | 8 | 16 | 16 | 16 |
| Cold Call - Tide | 20 | 40 | 40 | 56 |
| I'm an Asshole - Tushy | 3 | 6 | 6 | 62 |
| Inglorious Fruits and Vegetables - Intermarché | 15 | 30 | 30 | 92 |
| Let's look after what we love - Sky | 2 | 4 | 4 | 96 |
| Mosquitoes vs Mosquitoes - Quinto Andar | 2 | 4 | 4 | 100 |
| Total | 50 | 100 | | |

The modal choice was *Cold Call – Tide*, selected by 40% of participants (20/50), followed by *Inglorious Fruits and Vegetables – Intermarché* at 30% (15/50) and *Cap the Tap*

– Reckitt Finish at 16% (8/50). The remaining options drew single-digit support: *I’m an Asshole* – TUSHY (6%), *Let’s Look After What We Love* – Sky (4%), and *Mosquitoes vs Mosquitoes* – Quinto Andar (4%). Notably, no respondents selected *Twiggy Full Circle* – eBay or *Fog Point Limited Edition Vodka* – Hangar 1 as the campaign most likely to change something they do. This rank order mirrors the “top cluster” identified in the repeated-measures willingness analyses and the emotion–adoption correlations—*Cold Call*, *Inglorious Fruits and Vegetables*, and *Cap the Tap* are precisely the executions that most reliably elicited joy/anticipation/trust, the three emotions that showed the strongest positive associations with adoption across the study.

In contrast, the campaigns that received no “most likely to change” votes were those in which disgust or weak trust dampened willingness (e.g., *Fog Point Limited Edition Vodka*), or in which persuasive emotions were not consistently elicited (*Twiggy Full Circle*). In short, consumers’ explicit choices converge with the continuous rating evidence: when an ad makes the behavior feel credible, easy, and rewarding, people nominate it as the one that would move them (Ajzen, 1991; Gallopel-Morvan & Crié, 2022; Sánchez-Fernández & Iniesta-Bonillo, 2007; Sheeran, 2002).

Table 32 Frequency of selection of campaigns that stand out to consumers.

Frequency for “Campaigns that stand out to you”

| Selected campaign | Frequency | Percent | Valid Percent | Cumulative Percent |
|--|-----------|---------|---------------|--------------------|
| Cap the Tap - Reckitt Finnish | 5 | 10 | 10 | 10 |
| Cold Call - Tide | 15 | 30 | 30 | 40 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | 6 | 12 | 12 | 52 |

Frequency for "Campaigns that stand out to you"

| Selected campaign | Frequency | Percent | Valid Percent | Cumulative Percent |
|--|-----------|---------|---------------|--------------------|
| I'm an Asshole - Tushy | 8 | 16 | 16 | 68 |
| Inglorious Fruits and Vegetables - Intermarché | 10 | 20 | 20 | 88 |
| Let's look after what we love - Sky | 2 | 4 | 4 | 92 |
| Mosquitoes vs Mosquitoes - Quinto Andar | 4 | 8 | 8 | 100 |
| Total | 50 | 100 | | |

The companion item on campaigns that “stand out” helps separate salience from persuasive potency. Again, *Cold Call* was most frequently named (30%), with *Inglorious Fruits and Vegetables* next (20%). Two executions, however, illustrate the salience–persuasion distinction. *Fog Point Limited Edition Vodka – Hangar 1* “stood out” for 12% of respondents but received zero “most likely to change” selections—consistent with its strong surprise/anticipation (attention capture) coupled with a negative-affect penalty that significantly undermined adoption. Conversely, *Cap the Tap* was chosen by only 10% as “stand-out” yet earned 16% as “most likely to change,” reflecting a low-friction, efficacy-rich frame that may be less flashy but more actionable. *I’m an Asshole* shows a similar split (stands out 16%, change 6%), consistent with a mixed-valence response profile in which humor generates attention and joy for some while disgust inhibits conversion for others. These patterns align with classic persuasion theory: attention is necessary but not sufficient for attitude and intention change; messages convert attention into adoption when they supply diagnostic, credible arguments that fit the audience’s goals and capabilities (Petty et al., 1983; Sheeran, 2002; Witte & Allen, 2000) (Petty, Cacioppo, & Schumann, 1983), and when the emotional flow moves from initial attention

(often surprise) to trust and approach-oriented affect that support enactment (Witte & Allen, 2000; Sheeran, 2002).

To conclude, in planning or optimizing sustainability marketing campaigns, businesses should optimize conversion-relevant emotions, not just memorability. Creatives that reliably evoke trust and joy (often with a spark of surprise/anticipation) and pair them with clear, feasible next steps (i.e., nudging) are most likely to be named as the ad that would change behavior. Creatives that merely stand out—because it is novel, shocking, or provocative—risks attention without adoption unless credibility and feasibility are made salient (Ajzen, 1991; Petty et al., 1983; Sheeran, 2002).

4.2.2 QUALITATIVE ANALYSIS OF CONSUMER RESPONSES

This qualitative component has two aims. First, it seeks to discover how audiences construed the sustainability campaigns in their own words, making visible the mechanisms that bridge affective experience and adoption intentions. Second, it seeks to triangulate those audience mechanisms against the intervention logics synthesized in the SLR (Chapter 2) and the rhetorical configurations identified in the corpus-level analysis of award-winning campaigns (Chapter 3).

Methodologically, the analysis is located within a reflexive thematic analysis tradition using a hybrid inductive–deductive strategy (Braun & Clarke, 2006; Guest et al., 2012; Lincoln & Guba, 20; Nowell et al., 2017; Saldaña, 2025). Inductively, in-vivo codes were allowed to surface from audience language (e.g., “*it was ridiculous,*” “*feels like,*” “*my*

family”). Deductively, the codebook examined theoretically salient constructs established earlier, including credibility/authenticity, identity and social norms, perceived behavioral control/efficacy, responsibility/agency assignment, and the trust–joy emotional backbone with calibrated urgency documented in Chapter 3. These constructs are consistent with dual-process persuasion and action-formation accounts emphasizing perceived credibility and control (Ajzen, 1991; Bandura, 1977; Petty, 1986), the behavioral influence of descriptive/injunctive norms (Cialdini, 2003), and the importance of removing micro-frictions (Thaler & Sunstein, 2008).

The qualitative inquiry is designed to be commensurate with the quantitative architecture in Chapter 4. The quantitative component established whether intended “target emotions” were perceived and whether adoption likelihood differed across marketing creatives for sustainable behavior changes. The qualitative analysis complements this by examining audience explanations (the “why” answers and per-stimulus open responses), specifying the mechanisms that accompany higher- and lower-influence campaigns and diagnosing misalignment between intended versus experienced emotion when efficacy/clarity are weak (Nabi, 2015; Nabi et al., 2018). In short, Chapters 2 and 3 provided what works and how campaigns speak; the present section asks why audiences say they would act, given what they saw.

The corpus comprises all open-ended responses captured during the same Prolific session. Responses span per-stimulus “Why? Please explain...” items, comparative

prompts (e.g., “Which campaign would change something you do? Why?”), and general reflection questions (e.g., “What do businesses need to do?”). After light normalization and removal of empty strings, 1,273 analyzable excerpts remained. The unit of analysis is the excerpt. Multi-coding was permitted so that an excerpt could be coded into more than one theme (e.g., feasibility and skepticism). To preserve de-identification and allow within-person coherence of quotations, each respondent was assigned a deterministic label Rxx (“R” for Respondent), where R1 corresponds to the first record in the dataset, R2 to the second, and so on. These labels are used in quotation sourcing and do not encode personal information.

Coding proceeded in two passes. The open coding pass on a stratified subset (~25 percent of excerpts balanced across campaigns) produced in-vivo labels for perceived credibility (“*real*,” “*works*,” “*effective*”), feasibility (“*easy*,” “*taking steps*,” “*extra conscious*”), identity/norms (“*my family*,” “*we all*”), and agency assignments (“*government should*,” “*companies need to*,” “*I can start*”). The focused coding pass collapsed related labels into themes with explicit decision rules, drawing deductively from Chapter 2 and Chapter 3.

Percentages reported in this section are presence–absence rates. For each theme, the numerator is the number of distinct excerpts that exhibit the theme at least once; the denominator is 1,273 excerpts. Since multi-coding is allowed, percentages do not sum to one hundred. In addition, a co-occurrence matrix was computed at the excerpt level, counting the number of excerpts in which two themes appeared together. The logic is

analytic rather than prevalence-only, preserving compound mechanisms (e.g., “feasible and credible,” “positive affect and norms”) rather than forcing exclusivity (Braun & Clarke, 2019; Saldaña, 2016). This mirrors previous emphasis on multi-component emotion (i.e., target emotion can drift under audiovisual execution) and intention formation that depends on both affect and perceived control (Bandura, 1982; Witte, 1992).

4.2.2.1 CONSUMERS’ WORDS

4.2.2.1.1 WHAT “SUSTAINABILITY” IS

Sustainability, for these respondents, is first and foremost a matter of resource stewardship enacted through small, repeatable domestic practices.

Table 33 What sustainability is for consumers.

| Theme | Count | % (50 respondents) |
|---------------------------------|-------|--------------------|
| Energy/Water Conservation | 22 | 44 |
| Waste/Plastics Reduction | 10 | 20 |
| Reduce Reuse Repair | 10 | 20 |
| Transportation Shift | 4 | 8 |
| Eco purchasing | 6 | 12 |
| Minimalism | 4 | 8 |
| Cost/Time Calculus | 3 | 6 |
| Concerns for Future Generations | 1 | 2 |
| Food/Diet Choices | 1 | 2 |

Four in ten responses (44%) spontaneously anchor sustainability in energy and water conservation (“*Reducing my waste. Recycling, saving water, and making items last.*”), while 20% foreground waste avoidance and plastics reduction (“*not using so much plastic*”). 20% also stress reduce–reuse–repair (“*means reuse recycle and repeat to me*”), while smaller but meaningful minorities emphasize eco-friendly purchasing (12%) (“*knowing that the products I buy have a low carbon footprint in the manufacturing process*”), transportation shifts (12%) (“*If a farmer near me grows tomatoes using rainwater and no chemicals, and I walk*”).

to that farm and pay for the tomatoes by trading goods and/or services, that is sustainable.”), minimalist consumption (8%) (“Sustainability to me in my everyday life means not living in excess.”), cost/time calculus (12%) (“To go on and continue doing what you are doing over a long period of time, especially if it makes sense economically”), future-generations stewardship (2%) (“Making choices that will have minimal impact on future generations.”), and food/diet choices (2%) (“Make sure that my purchases whether its food, home items, clothes etc. are sustainably sourced and ethical”).

These emphases portray sustainability less as a single identity position and more as a bundle of actionable, bite-sized habits that feel feasible, frugal, and morally prudent in the near term, especially when they deliver immediate personal benefits (lower bills, less clutter) alongside environmental gains. This logic resonates closely with the interventions discussed in the SLR, which synthesizes digital nudges and feedback for energy/water, norms/defaults for waste reduction, menu design and framing for food waste, pricing/incentives, and loyalty programs for greener product choice.

The energy/water cluster is participants’ most salient everyday domain. That salience aligns perfectly with the SLR’s actionable levers: digital nudges (reminders), visual impact feedback, and gamified home-energy apps that deliver progress dashboards and reinforcement (Boenke et al., 2022; Gallopel-Morvan & Crié, 2022; Lowe et al., 2015; Mulcahy et al., 2020; Thaler & Sunstein, 2008). Respondents’ “turn things off/save water” self-definitions are precisely the micro-behaviors enhanced by those

tools; the SLR explicitly details designs in which apps send reminder to perform energy-saving behaviors, warn of wasting energy, provide visual aids, give feedback on progress, and pairs feedback with points/badges to sustain engagement. Together, these mechanisms (reminders → immediate feedback → rewards) are the right scaffolding for the habits that respondents already consider the essence of sustainability.

The second lay pillar—waste and plastics avoidance—maps onto classic choice-architecture tools: defaults, social proof, and labeling (Brennan et al., 2014; Ferrari et al., 2015; Hale, 1996; Horne, 2009). The SLR documents eco-labeling to make compostable/reusable options obvious at point-of-use; environmental messaging that dramatizes the footprint of disposable items; and notably opt-out defaults such as offering doggy bags by default to curb food waste. Everyday definitions that valorize “not throwing things away” or “using reusables” will be reinforced when labs, cafés, and municipal settings build visible norms and easy defaults into the environment (e.g., recycling bins co-located with trash cans, standardized composability logos).

The reduce–reuse–repair theme functions in this sample as a “gateway mindset”: people start with recycling or making an item last, then generalize to other domains (buying used, conserving resources). The SLR explicitly recommends leveraging this spillover property — “use recycling as a gateway to promote green product purchase and resource conservation” —and couples it with loyalty mechanics (e.g., small rewards for reusables) to keep the behavior chain active (Alevizou et al., 2021; Nicolau et al., 2022;

Nilsson et al., 2017; Poortinga et al., 2013; Thøgersen & Ölander, 2003). The combination of gateway cues plus light incentives operationalizes the precise ethos participants already voice (“*last for many generations to come*”), while gradually broadening the sustainable behavior scope.

Other than these main themes, some answers connect sustainability with getting from place to place in lower-impact ways. While mentions are terse, mobility appears as part of a general orientation toward doing “*going local*.” Several respondents define sustainability as “*knowing that the products I buy have a low carbon footprint in the manufacturing process*” preferring “*being environmentally aware of products I buy*,” and, in a few cases, “*eating local*.” A smaller cluster articulates sustainability as restraint and sufficiency (“*not living in excess*,” or “*making choices with minimal impact*”). A few responses foreground practicality—what can be done consistently daily, within ordinary constraints of time and effort, yet has lasting beneficial results (“*It is a way of life to keep things in cycle for a little extra time*”), and concerns for the future (“*making choices that balance my needs today with allowing resources for the future*”).

In sum, these respondents cast sustainability as practical stewardship: a set of everyday, low-friction decisions that conserve energy/water and avoid waste, ideally with immediate personal payoff. The SLR’s toolbox renders that ethos implementable: use digital nudges and feedback to amplify energy/water micro-habits; build defaults, labels, and salient norms into waste and plastic contexts; deploy menu design and gain-

framed messages to activate under-expressed food behaviors; and reinforce reduce–reuse–repair with loyalty and gateway designs that encourage spillover.

4.2.2.1.2 RESPONSIBILITY FOR SUSTAINABILITY

Drawing on fifty short, open-ended responses to the prompt “Who should be most responsible for sustainability?” this study conducted an inductive, reflexive thematic analysis appropriate for brief, natural language data. As done previously, the procedure followed an iterative sequence of open coding, axial grouping, and theme development with an emphasis on patterned meaning (Braun & Clarke, 2006, 2019). While counts are not the focus of this method, the corpus nonetheless provides a useful descriptive backdrop: respondents most often named governments (19/50; 38%) and businesses (16/50; 32%) as primarily responsible, with fewer pointing to consumers (9/50; 18%) or to shared responsibility (“everyone,” 5/50; 10%); one response assigned joint responsibility to consumers and businesses while explicitly excluding government (2%). These proportions situate, but do not determine, the interpretive analysis that follows.

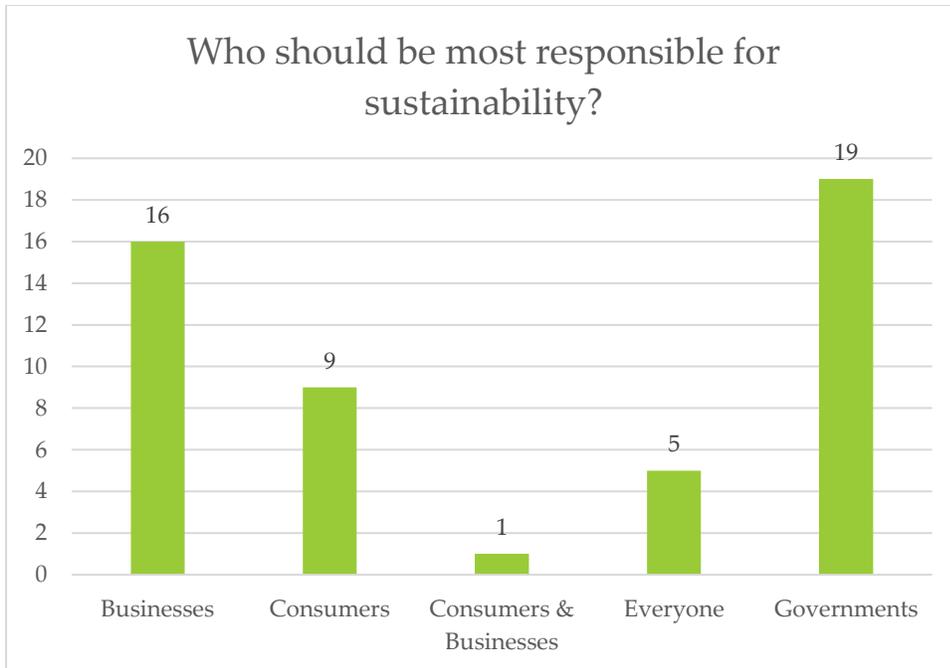


Figure 76 Consumers' responses to the question "Who should be most responsible for sustainability?"

The dominant theme attributes responsibility to government-led systemic action, justified by unique state capacities to legislate, regulate, coordinate infrastructure, and enforce standards across whole systems. Respondents framed governments as the only actor able to make binding rules, align incentives, and ensure a *“just transition,”* thereby shaping the decision environments in which firms and consumers operate. This reasoning coheres with scholarship on regulatory pluralism and *“smart regulation,”* which argues that effective environmental outcomes typically require policy mixes—combinations of command-and-control, market-based, and informational instruments—that only public authorities can legitimately orchestrate (Gunningham & Sinclair, 1999). Polycentric governance perspectives likewise emphasize the value of multi-level, public-sector coordination to reconfigure markets and infrastructures (Ostrom, 2010), while work on mission-oriented policy underlines the role of the state in steering innovation

and investment toward societally critical objectives (Mazzucato, 2018). Equity concerns embedded in several responses further resonate with the *“just transition”* literature, which highlights distributional and procedural justice in the design of pro-environmental transitions (Heffron, 2021).

A second, co-equal theme assigns corporate primacy on the grounds that firms both cause and control substantial environmental impacts through design, sourcing, manufacturing, packaging, energy choices, and end-of-life management. Participants repeatedly argued that companies *“do the most damage,” “are most involved in the process of producing and disposing products”* and *“have the resources”* to act quickly, while some noted the need for oversight to ensure that profit motives align with public goals. This logic is closely aligned with the framework of Extended Producer Responsibility (EPR), which assigns producers significant responsibility for the environmental performance and post-consumer impacts of their products (Lifset et al., 2013; OECD, 2016). It also tracks classic stakeholder and corporate social responsibility theories that position firms as accountable to a broad set of stakeholders beyond shareholders (Bocken & Allwood, 2012; Carroll, 1991; Chang & Chuang, 2021; Da Silva et al., 2013; Donaldson & Preston, 1995; Haddock-Fraser & Tourelle, 2010; Lähteenoja et al., 2014; Stohl & Yang, 2020; Yen, 2018), and it dovetails with debates over whether well-designed regulation can spur environmental innovation and competitiveness—the so-called Porter hypothesis (Porter & Linde, 1995). Modeling work further suggests that both individual and collective variants of producer

responsibility can be structured to balance efficiency and accountability across supply chains (Atasu & Subramanian, 2012).

A third, less prevalent theme emphasizes consumer agency and market signaling, asserting that purchase choices and lifestyle practices drive firm behavior and, by extension, policy responses. Respondents argued that “*companies listen to buyers,*” that demand discipline constrains production, and that consumers are the most affected by sustainability outcomes. This view aligns with the literature on political consumerism (boycotts and buycotts) and the social mechanisms through which consumer choices can express values and create market pressure (Stolle & Micheletti, 2013; Thøgersen, 2005). Behavioral frameworks of environmentally significant action also support the idea that individual choices can aggregate meaningful change under appropriate conditions (Stern, 2000). At the same time, the critical literature warns against the “individualization of responsibility,” whereby structural conditions—such as infrastructure, pricing, and default options—limit what even motivated consumers can achieve on their own (Maniates, 2001; Shove, 2010). Several responses implicitly acknowledged such constraints, noting that many consumers face more immediate economic pressures than climate concerns (“*Consumers have “bigger” problems than global warming/climate change. And it’s not even these things aren’t a huge problem-- it’s just that people have a lot of immediate problems. When you’re worried about bills and survival, the last thing on your mind is saving the planet.*”), especially absent enabling infrastructures and viable “green defaults.”

A fourth theme, shared responsibility and whole-of-society coordination, synthesizes the preceding positions by asserting that sustainability requires aligned action by governments, businesses, and consumers (*“Because everything interacts with each other. Governments need to take the right steps with favorable policies. Companies follow that policies and consumers creating a conscious society.”*). Respondents described complementary roles—governments set direction and rules, companies implement and innovate within those rules, and consumers adopt and normalize sustainable practices—mirroring polycentric and transitions scholarship that views socio-technical change as a co-evolutionary, multi-actor process supported by coherent policy mixes (Gunningham & Sinclair, 1999; Kivimaa & Kern, 2016; Messiha et al., 2023; Ostrom, 2010). Notably, a minority of responses expressed skepticism toward government—citing gridlock or politicization—and proposed excluding the state altogether (*“And governments don’t seem ineffective at doing anything productive or positive.”*, *“I’d like to keep government out of the mix because they already argue about enough stuff, it would just give them more to argue about.”*). This skepticism flags an enduring design challenge for environmental governance: how to mobilize state capacity while maintaining legitimacy and perceived efficacy, often by coupling regulation with co-regulatory and market instruments to minimize politicization and maximize performance (Gunningham & Sinclair, 1999).

Across all themes, four cross-cutting normative logics underpin the attributions of sustainability responsibility. First, capacity/authority logic holds that those with the legal

power and instruments to shape systems (the state) should act (Gunningham & Sinclair, 1999; Mazzucato, 2018). Second, causation/harm logic assigns responsibility to those whose activities create the largest externalities (producers), consistent with EPR (Lifset et al., 2013; OECD, 2016). Third, a control/proximity logic emphasizes the actor closest to design and supply-chain levers (firms) as best positioned to make rapid, high-impact changes (Donaldson & Preston, 1995; Porter & Linde, 1995). Fourth, an agency/market logic places weight on consumers' capacity to signal and normalize sustainability through demand and everyday practices (Stern, 2000; Stolle & Micheletti, 2013). A fifth, less frequent but salient justice logic foregrounds the need for fair burden- and benefit-sharing across the transition, echoing just-transition scholarship (Heffron, 2021).

All in all, the corpus tilts toward state-led and firm-led responsibility while recognizing bounded but meaningful roles for consumers and for coordination across actors. This pattern mirrors contemporary research suggesting that durable sustainability outcomes typically require (a) state-crafted policy mixes and mission-oriented investments to reshape infrastructures and incentives; (b) producer-side redesign and accountability consistent with EPR; and (c) demand-side participation via consumerism and social practice change, provided structural conditions make sustainable choices accessible and default (Gunningham & Sinclair, 1999; Lifset et al., 2013; Mazzucato, 2018; OECD, 2016; Shove, 2010; Stolle & Micheletti, 2013). The practical implication is not to elevate a single locus of responsibility but to clarify role complementarities: governments

should set and enforce binding standards while investing in enabling systems; firms should internalize externalities through design, marketing, and supply-chain governance; and consumers and civil society should exert market and normative pressure while advocating for structural reforms that expand sustainable defaults and reduce burden-shifting (Kivimaa & Kern, 2016; Ostrom, 2010; Stern, 2000).

4.2.2.1.3 CONSUMERS' THOUGHTS ON SUSTAINABILITY MARKETING

A manual binary judgment (“Yes/No”) for whether each respondent grasped the intended message of eight campaigns (N = 50; 400 judgments) is conducted. Overall comprehension was high: 88% of judgments were “Yes”. Half of respondents (44%)

answered “Yes” for all eight videos, and 84% did so for at least six (median = 8

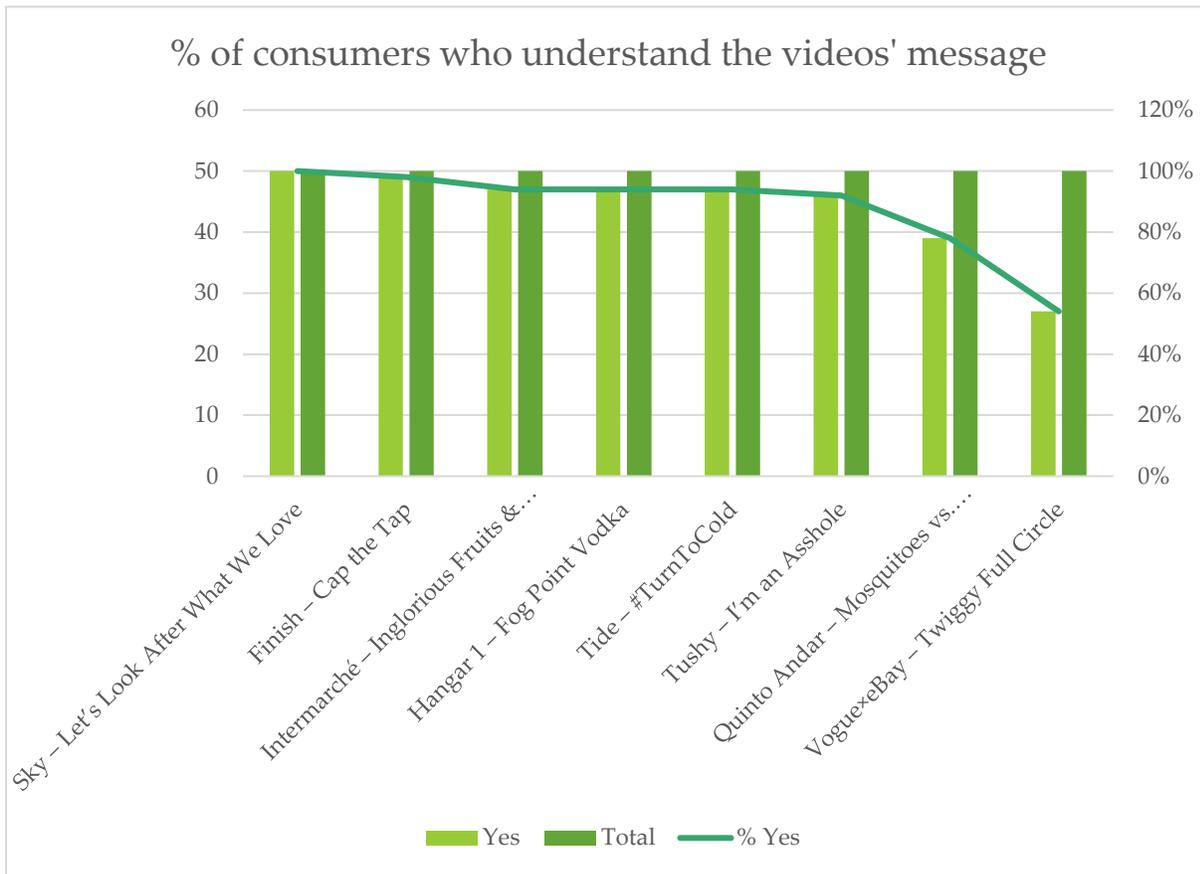


Figure 77 Percentage of consumers who really understood the message of each video.

By campaign, “message understood” rates were:

- Let's Look After What We Love – Sky: 100% (50/50)
- Cap the Tap – Reckitt Finish: 98% (49/50)
- Inglorious Fruits & Vegetables – Intermarché: 94% (47/50)
- Fog Point Limited Edition Vodka – Hangar 1: 94% (47/50)
- Cold Call – Tide (#TurnToCold): 94% (47/50)
- I'm an Asshole – Tushy (bidet): 92% (46/50)
- Mosquitoes vs. Mosquitoes – Quinto Andar: 78% (39/50)

- Twiggy Full Circle – eBay: 54% (27/50)

The pattern suggests that highly concrete, single-action propositions (e.g., turn tap off; wash in cold; buy “ugly” produce) conveyed their aims most clearly, whereas narrative or celebrities-led circularity stories (e.g., *Twiggy Full Circle*) were more frequently misunderstood. This aligns with prior evidence that simple, action-oriented sustainability messages are easier to decode than abstract or multi-actor appeals (Hanks et al., 2016; White et al., 2019).

To better understand consumers’ reception of these videos, using reflexive thematic analysis, this study uncovers several themes of consumers’ opinions on businesses’ marketing efforts to promote sustainability/sustainable behavior (Braun & Clarke, 2006, 2019).

The first, prominent theme is conditional approval anchored in authenticity and follow-through. Many respondents welcomed such campaigns when they are “*genuine*,” not “*just to sell*,” and “*backed by real company actions*,” repeatedly flagging “*follow-through*” and “*accountability*.” As mentioned in the SLR, this conditionality maps onto longstanding evidence that stakeholder reactions to corporate social initiatives depend on perceived fit (congruence between the issue and the brand), motivation (public-spirited vs. self-serving), and timing (proactive vs. reactive) (Becker-Olsen et al., 2006; Sen & Bhattacharya, 2001). Where fit or motives are questionable, persuasion can backfire, reducing purchase intent; when firms communicate proactively and

transparently, they mitigate perceived hypocrisy (Du et al., 2010; Wagner et al., 2009). These respondents' concerns thus mirror the SLR's caution that communication without credible action is fragile, while say–do consistency sustains persuasion.

A second, equally salient theme is skepticism and greenwashing risk. Several answers described campaigns as *“performative,” “a ploy to pass the buck, get a tax break, or simply play on people’s emotions to make a profit,” “profit-seeking”, “buy their product because they say they will save you money” “didn’t find the video very persuasive. It seemed dated and obnoxious. It gave me secondhand embarrassment,” or “virtue signaling,”* and some singled out specific ads as *“annoying” or “disingenuous.”* This skepticism is consistent with the Persuasion Knowledge Model, which predicts that audiences infer advertisers’ tactics and guard against perceived attempts at influence (Friestad & Wright, 1994). In the environmental domain, systematic work documents that greenwashing—misleading environmental claims—erodes consumer green trust and breeds confusion and perceived risk (Chen & Chang, 2013; Delmas & Burbano, 2011)). Historic surveys of marketplace claims helped popularize this problem and, arguably, normalized a skeptical stance toward eco-claims (Dahl, 2010; Seele & Gatti, 2017). The presence of skepticism in this data is therefore not idiosyncratic; it reflects an informed audience applying persuasion knowledge to a claim space with documented credibility problems (Mohr et al., 1998).

A third theme emphasizes perceived public benefits—awareness raising, norm diffusion, and reach. Supportive respondents framed such campaigns as *“viable,”*

“integral,” and “team behavior”, saying that “businesses are so creative and are aiming to bring change to the world,” and that “If it’s good for the planet and their business, it’s a win-win.” These respondents praise businesses’ ability to *“spread awareness”* and make pro-environmental behavior socially visible. This aligns with robust evidence that communications which activate social norms can shift behavior at scale, provided they distinguish between descriptive norms (what most people do) and injunctive norms (what most people approve), and avoid boomerang effects (Cialdini, 2003; Cialdini & Jacobson, 2021; Farrelly et al., 2003; Perkins & Berkowitz, 1986; Schultz et al., 2007). Contemporary reviews in marketing likewise recommend designing interventions that leverage social influence, feelings/cognition, and tangibility to shift behavior toward sustainability (White et al., 2019).

A fourth theme concerns content and messenger preferences: respondents valued informative, actionable, and credible messages and expressed discomfort with celebrity-fronted efforts that feel inauthentic (*“They don’t need celebrities... those are not real people to get opinions from.”*). This is consistent with research showing that endorsement effectiveness depends on source credibility (expertise, trustworthiness, attractiveness) and on the match-up between the endorser and the cause/product; poor fit reduces persuasion and can heighten skepticism (Kamins, 1990; Ohanian, 1990). In green marketing specifically, critics have argued that style without substantive information

undermines effectiveness and legitimacy, reinforcing calls for claims that are specific, verifiable, and material (Peattie & Crane, 2005).

A fifth cross-cutting theme is alignment between communication and operational performance. Several respondents endorsed campaigns but insisted firms should first “*be more sustainable,*” “*minimize the production of waste and harmful substances,*” and “*follow through,*” thereby rejecting burden-shifting to consumers. This sentiment is supported by studies showing that communication–performance misalignment can backfire. Green ads paired with weak environmental performance generate especially negative reactions, whereas strong performance makes green messaging more credible and effective (Nyilasy et al., 2014). More broadly, the greenwashing literature links misalignment to downstream trust erosion and reputational risk, reinforcing the strategic value of audited metrics, third-party certification, and transparent reporting alongside campaigns (Chen & Chang, 2013; Delmas & Burbano, 2011; Seele & Gatti, 2017).

Synthesizing across themes, the corpus sketches a pragmatic conditional endorsement: consumers welcome corporate campaigns that promote pro-environmental behaviors, especially when they are upbeat, socially shared, and informative; yet credibility is contingent on fit, motives, messenger, and verifiable action. This pattern fits with theory and evidence from CSR communication, persuasion, and green marketing: effective campaigns require say–do coherence, audience-centric design that leverages norms without moralizing, and transparent claims that withstand persuasion-knowledge

scrutiny (Du et al., 2010; Friestad & Wright, 1994; White et al., 2019). In other words, the findings imply five design priorities: (1) pair marketing campaigns for sustainability with measurable operational improvements and disclose them; (2) ensure high cause–brand fit and credible motives; (3) use norm-based, efficacy-focused messages to make behaviors feel common and doable; (4) privilege clear, specific, and verifiable information over generic signaling (and avoid celebrity use without demonstrable congruence); and (5) pre-empt greenwashing accusations through independent verification and ongoing reporting. These priorities reflect the audience’s preferences in the dataset and are consonant with the scholarly consensus on how to communicate sustainability without eroding trust.

4.2.2.1.4 CONSUMERS’ IDEAS ON THEIR OWN BEHAVIOR CHANGE

In applying the co-creation/co-design mindset, we questioned consumers about what consumers think businesses can do to promote pro-environmental behavior to them. Seven interlocking themes emerged: (1) friction-reduction and convenience; (2) affordability and incentive alignment; (3) clear, credible guidance and feedback; (4) corporate self-change and “lead by example”; (5) transparency, trust, and accountability; (6) message design and messenger fit; and (7) fairness and burden-sharing.

First, respondents consistently stressed friction-reduction and convenience—requests for options that are “*easy*,” “*simple*,” “*not an inconvenience*,” and “*obviously beneficial*” to implement (e.g., intuitive packaging, caps attached, clear message). This

aligns with evidence that small “hassle costs” powerfully deter action, while choice architecture and nudging—especially defaults and simplification—can materially raise adoption of pro-environmental choices (Gallopel-Morvan & Crié, 2022; Hummel & Maedche, 2019; Pichert & Katsikopoulos, 2008)). Social-norm interventions that make sustainable actions feel common and easy (e.g., descriptive/injunctive norms, team-like framing) further reduce psychological friction (Cialdini, 2003; Schultz et al., 2007). In short, the data and the literature converge on a principle: make the sustainable option the path of least resistance.

Second, many respondents requested affordable options and aligned incentives, explicitly noting that they “*can only afford what [they] can afford. Being environmentally conscious costs a lot of money for some strange reason.*” and proposing discounts, rewards, deposit-like mechanisms, or at least no price penalty for greener choices. Economic and behavioral research indicates that unit-based pricing and deposit-refund schemes measurably increase recycling and proper disposal, while targeted monetary incentives can boost adoption when designed to complement intrinsic motives, in accordance with the SLR (Gneezy et al., 2011; Kinnaman, 2006; Nicolau et al., 2022; Ratay & Mohnen, 2022; Walls, 2011). Put differently, businesses can lower the cost-to-comply through pricing, loyalty benefits, and product-take-back programs that keep effort and out-of-pocket costs low.

Third, respondents asked for clear, credible, and actionable guidance, including *“practical behaviors,” “frequent reminders,” “visible metrics of impact,” “continue to educate consumers,”* and straightforward instructions on *“how to recycle or reduce waste.”* This preference matches previous SLR insights and other robust results showing that timely feedback and comparative information (e.g., home-energy reports) produce persistent, if modest, conservation gains, and that well-designed normative messages shift behavior without boomerang effects when they combine descriptive and injunctive cues (Allcott & Rogers, 2014; Schultz et al., 2007). Marketing reviews likewise emphasize designing interventions that make the behavior salient, easy, and normatively supported (nudging) (White et al., 2019).

Fourth, a substantial strand of the corpus insisted that firms must change themselves first— *“using renewable energies,” “fewer toxic ingredients, less plastic,”* and *“practice what they tell the consumers themselves.”* This is consistent with research showing that say–do misalignment undermines persuasion and can backfire, whereas credible operational improvements increase receptivity to green messages (Nyilasy et al., 2014). More structurally, extended producer responsibility (EPR) frameworks internalize downstream impacts into product and packaging design, thereby reducing the behavioral load placed on consumers and making sustainable conduct easier by default (Lifset et al., 2013; OECD, 2016).

Fifth, respondents repeatedly called for transparency and accountability— *“be truthful and trustworthy,” “come forward with dirty secrets,” “get regulated,”* and demonstrate *“real and earnest change.”* These demands mirror evidence that greenwashing erodes green trust, raises perceived risk, and can generalize skepticism to the entire category of environmental claims (Chen & Chang, 2013; Delmas & Burbano, 2011). Credibility, in turn, is strengthened by third-party certification and specific, verifiable claims (Teisl et al., 2002). Practically, businesses should pair sustainability marketing claims with auditable metrics and independent verification rather than relying on generic appeals.

Sixth, the dataset revealed preferences about message design and messenger fit. Respondents favored simple, upbeat, efficacy-focused messages and cautioned against *“pushing it too hard,”* while some rejected celebrity-fronted appeals altogether. This is congruent with the Persuasion Knowledge Model—when people perceive overt persuasion or poor motive fit, they resist (Friestad & Wright, 1994)—and with endorsement research showing that effectiveness depends on source credibility and match-up between the messenger and the cause (Kamins, 1990; Ohanian, 1990). Contemporary guidance in sustainable marketing likewise recommends using norm-based, efficacy-oriented messages that respect autonomy and provide clear *“how-to”* steps (White et al., 2019).

Finally, a cross-cutting theme concerned fairness and burden-sharing. Some respondents said, *“probably nothing”* businesses’ marketing efforts would change them,

or that they already do enough; others objected to firms “*passing the buck*,” urging businesses to reduce upstream impacts so consumers are not asked to absorb additional costs or complexity. This echoes critiques of the individualization of responsibility, which argue that durable change requires structural enablers and equitable burden allocation rather than moralizing individual choice (Akenji, 2014; Maniates, 2001). The implication is that the most persuasive corporate interventions combine upstream redesign (less waste and toxicity), consumer-side convenience and affordability, and credible communications that invite—not coerce—participation.

In sum, the corpus supports a both/and model of influence. According to consumers, businesses can most effectively foster their pro-environmental adoption when they (a) redesign products, packaging, and services to eliminate friction and lower costs; (b) offer aligned incentives that respect intrinsic motives; (c) provide clear instructions and feedback grounded in social norms and impact metrics; (d) lead by example through verifiable operational improvements and EPR-consistent design; and (e) maintain trust through transparent, third-party-verified claims and messenger–message congruence (Allcott & Rogers, 2014; Delmas & Burbano, 2011; Gallopel-Morvan & Crié, 2022; Kinnaman, 2006; Lifset et al., 2013; Pichert & Katsikopoulos, 2008). Importantly, several respondents underscored that affordability and convenience are prerequisites; without them, even well-intentioned campaigns will face adoption resistance.

4.2.2.1.5 OTHER FREE THOUGHTS AND QUOTES

Across the closing reflections, respondents returned repeatedly the themes of authenticity versus profit motive. Some perceived many campaigns as *“inauthentic,”* *“vague,”* or *“profit-seeking,”* whereas others allowed that a campaign can be both profit-seeking and authentic when the social aim is substantively pursued (e.g., *“they can be both profit-seeking and authentic at the same time while serving a greater purpose”*). This ambivalence mirrors well-established findings that consumer responses to corporate sustainability efforts hinge on attributions of motive (public-serving vs. self-serving) and fit between the brand and the cause; perceived opportunism elevates skepticism and can dampen persuasion, whereas perceived sincerity and high cause–brand congruence protect effectiveness (Becker-Olsen et al., 2006; Sen & Bhattacharya, 2001; Yoon et al., 2006). Related work on corporate hypocrisy shows that when messages outpace deeds, observers react especially negatively (Wagner et al., 2009). Conversely, when firms are seen to *“integrate sustainability into their core values,”* the communication is judged as more legitimate, aligning with organizational research that durable social initiatives are most credible when embedded in strategy and operations rather than appended as advertising (Aguinis & Glavas, 2012).

A second pattern is what might be termed pragmatic consequentialism: a non-trivial subset of respondents reported that they *“don’t really care”* about commercial intentions if campaigns *“do something good”* and *“get the job done.”* This stance, which

believes that there is a *“happy medium of activism and company profit”*, is consistent with research showing that sustainability communication can create value for consumers via informational, emotional, and self-expressive pathways even when instrumental (financial) motives are present, provided the initiative demonstrably advances outcomes people care about (Du et al., 2010; Pelozo & Shang, 2011). The practical implication is not that motives are irrelevant. Motive attributions still shape trust, but that visible impact can offset some skepticism, especially when claims are specific, verifiable, and paired with credible performance data (Nyilasy et al., 2014; Teisl et al., 2002).

Third, respondents articulated a clear *“authenticity premium”* for campaigns that feel transparent, educational, and values-driven (e.g., *“I appreciate campaigns that feel authentic and transparent”*; *“My favorite kind of campaign is one that educates and motivates to act instead of a campaign that simply sells a product.”*). This resonates with the branding literature on perceived authenticity—rooted in honesty, heritage, and values congruence—which predicts stronger identification and persuasion when audiences experience communications as *“real”* (Beverland, 2005; Morhart et al., 2015). In environmental domains, authenticity is threatened by greenwashing: misleading, vague, or non-material claims that erode green trust and generalize skepticism to businesses’ marketing efforts for pro-environmental behavior (Chen & Chang, 2013; Delmas & Burbano, 2011).

Fourth, several remarks foreground structural and economic constraints on adoption (*“people are struggling just to get by,” “cheaper options”*). This directly reflects the well-documented attitude–behavior gap in pro-environmental action: positive attitudes are necessary but insufficient when affordability, access, or convenience are misaligned (Kollmuss & Agyeman, 2002). Respondents’ calls for campaigns that *“educate,” “motivate,”* and *“make a difference”* sit comfortably alongside this constraint: the same literature shows that norm-based, efficacy-focused messages can shift intentions and behavior, particularly when combined with structural enablers that reduce cost and friction (Cialdini, 2003; Schultz et al., 2007; White et al., 2019).

Finally, a minority expressed sharp resentment toward perceived profiteering (*“profit-seeking leeches,” “I hate ads,” “go to hell”*), while others celebrated the campaigns (*“authentic,” “aim to save the environment,” “changed my thinking”*). This polarity, which seems inevitable, is anticipated by the Persuasion Knowledge Model: when audiences infer tactics or ulterior motives, they resist; when messages align with expectations and lived values, they persuade (Friestad & Wright, 1994). The co-existence of rejection and endorsement thus reinforces a strategic lesson that recurs across the corpus and the literature: effective sustainability communication requires say–do coherence (credible operations), transparent claims (specific, independently verifiable), values alignment (brand–cause fit), and consumer-centric design (educational, empowering content that lowers the effort to act) (Becker-Olsen et al., 2006; Du et al., 2010; White et al., 2019).

4.2.2.2 THEMATIC PREVALENCE

Detailed analyses of the themes will be explained below. Noticeably, the most prevalent audience mechanism is Anticipation and Doability (50.3% of excerpts), indicating forward-looking efficacy tied to a concrete, bite-sized next step (*“Making it easy and convenient for us to adopt that behavior without losing much,” “Provide options that are easy, cheap, and accessible for me to contribute with.”*). This prevalence is consistent with the SLR synthesis that adoption is facilitated when feasible steps are provided and with Chapter 3’s observation that award-winning campaigns privilege realistic asks aligned with everyday practice (Ajzen, 1991; Thaler & Sunstein, 2008). “Other/Descriptive” utterances, neither endorsing nor contesting mechanisms (*“They want us to stop wasting ugly fruits and vegetables,” “I’m going to forget about this after the video is over.”*), account for 31.3%.

Among mechanism-bearing themes, Responsibility Clarity (*“They should practice what they tell the consumers themselves,” “Governments should bear the primary responsibility for sustainability”*, *“When you’re worried about bills and survival, the last thing on your mind is saving the planet”*) appears in 11.7%, Joyful Identification (*“It is convenient and aesthetically pleasing”*) in 11.3%, Social Norms and Identity Fit (*“It’s something everyone should do.”*) in 9.0%, Friction and Feasibility (*“I’m not particularly interested, nor do I have the time for this.”*) in 7.6%, Credible Uplift (*“I think they don’t need celebrities, like in the last video or Vogue. Those are not real people to get opinions from.”*) in 6.2%, Skepticism/Greenwashing Guard (*“Many of the campaigns were profit-seeking, and that feels disingenuous.”*) in 2.1%, Incentives

and Structural Supports (*“Be aware of their program to minimize deaths from dengue fever.”*) in 1.8%, Negative Affect/Affective Dissonance (*“It was ridiculous.”*) in 0.9%, and Clarity and Call-to-Action (*“I am not sure how to support this research or campaign.”*) concerns in 0.8% of the excerpts.

Table 34 Themes Frequency

| Theme | Excerpts | % of excerpts |
|----------------------------------|----------|---------------|
| Anticipation & Doability | 640 | 50.3 |
| Other / Descriptive | 398 | 31.3 |
| Responsibility Clarity | 149 | 11.7 |
| Joyful Identification | 144 | 11.3 |
| Social Norms & Identity Fit | 115 | 9 |
| Friction & Feasibility | 97 | 7.6 |
| Credible Uplift | 79 | 6.2 |
| Skepticism / Greenwashing | 27 | 2.1 |
| Incentives & Structural Supports | 23 | 1.8 |
| Negative Affect / Dissonance | 12 | 0.9 |
| Clarity & CTA | 10 | 0.8 |

Table 35 Themes co-occurrences

| | Anticipation & Doability | Clarity & CTA | Credible Uplift | Friction & Feasibility | Incentives & Structural Supports | Joyful Identification | Negative Affect / Dissonance | Other / Descriptive | Responsibility Clarity | Skepticism / Greenwashing | Social Norms & Identity Fit |
|----------------------------------|--------------------------|---------------|-----------------|------------------------|----------------------------------|-----------------------|------------------------------|---------------------|------------------------|---------------------------|-----------------------------|
| Anticipation & Doability | 640 | 4 | 42 | 59 | 13 | 78 | 7 | 0 | 63 | 6 | 64 |
| Clarity & CTA | 4 | 10 | 0 | 2 | 0 | 4 | 0 | 0 | 1 | 2 | 0 |
| Credible Uplift | 42 | 0 | 79 | 15 | 4 | 14 | 2 | 0 | 13 | 11 | 13 |
| Friction & Feasibility | 59 | 2 | 15 | 97 | 4 | 9 | 0 | 0 | 15 | 10 | 16 |
| Incentives & Structural Supports | 13 | 0 | 4 | 4 | 23 | 0 | 0 | 0 | 13 | 1 | 5 |
| Joyful Identification | 78 | 4 | 14 | 9 | 0 | 144 | 5 | 0 | 18 | 7 | 24 |
| Negative Affect / Dissonance | 7 | 0 | 2 | 0 | 0 | 5 | 12 | 0 | 0 | 1 | 1 |
| Other / Descriptive | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 398 | 0 | 0 | 0 |
| Responsibility Clarity | 63 | 1 | 13 | 15 | 13 | 18 | 0 | 0 | 149 | 13 | 25 |
| Skepticism / Greenwashing | 6 | 2 | 11 | 10 | 1 | 7 | 1 | 0 | 13 | 27 | 7 |
| Social Norms & Identity Fit | 64 | 0 | 13 | 16 | 5 | 24 | 1 | 0 | 25 | 7 | 115 |

The strongest co-occurrences center on Anticipation & Doability paired with Joyful Identification (n = 78), Social Norms & Identity Fit (n = 64), Responsibility Clarity (n = 63), Friction & Feasibility (n = 59), and Credible Uplift (n = 42). By contrast, Skepticism/Greenwashing only rarely co-occurs with Anticipation & Doability (n = 6); instead, skeptical remarks appear more often alongside Responsibility Clarity (n = 13), Credible Uplift (n = 11), and Friction & Feasibility (n = 10). In sum, these compounds show that adoption-oriented discourse is typically braided from Doability, positive self-congruence, normative scaffolding, and credible mechanisms, whereas skepticism tends to be articulated with reference to who ought to act and whether claims are warranted—not with Doability per se (Ajzen, 1991; Bandura, 1977; Cialdini, 2003; Petty, 1986; Thaler & Sunstein, 2008).

4.2.2.2.1 CREDIBLE UPLIFT

This theme captures language signaling believable mechanisms, proportionate claims, and reduced perceived risk (Perloff, 1983; Rosenstock, 1974). It is coded when respondents reference realism, diagnostic evidence, or brand–issue fit (“works,” “effective,” “would use”). It is not coded when positivity lacks mechanism (then Joyful Identification) or when the focus is on barriers (Friction). Representative responses include: R04 on Cap the Tap – Reckitt Finish: *“I believe that the product in the water-saving ad is something I would actually use to help save water and decrease my water bill at the same time”*; R06 on the same campaign: *“I would like to see how the cap works to save water in my*

own home." The interpretation links directly to the SLR emphasis on credibility as a precondition for persuasion and to Chapter 4 findings that award-winning campaigns stabilize emotion around trust while keeping sustainability asks realistic (Keller, 2001; Petty, 1986).

4.2.2.2.2 JOYFUL IDENTIFICATION

This theme is present when respondents report enjoyment, humor, or identity-congruent tone that lowers resistance to change and is coded when positive emotion is linked to self-congruence ("*like me*") (Rogers et al., 1977). It is not coded when the primary emphasis is on feasibility without affect (Doability) or on credibility (Credible uplift). Representative responses include: R20 on Tide's Cold Call: "*It is something we regularly do*"; R21: "*Tide's seems to be the most effective because it requires very little effort.*", "*Those commercials are funny. And I like washing in cold water.*" The mechanism is consistent with broaden-and-build effects of positive affect and social-identity alignment (Fredrickson, 2001; Tajfel et al., 1979) (Fredrickson, 2001; Tajfel & Turner, 1979) and mirrors the trust-joy backbone observed in Chapter 3.

4.2.2.2.3 ANTICIPATION AND DOABILITY

The most frequent mechanism articulates a near-term next step and anticipatory efficacy: "*I will start,*" "*I can,*" "*no effort.*" Representative responses include: R49 on Tide: "*It is easy to change to cold water*" and R47 on Cap the Tap: "*The Cap the Tap campaign makes the issue personal and actionable*" The theoretical interpretation rests on perceived

behavioral control and action planning (Ajzen, 1991; Bandura, 1977, 1982; Bandura et al., 1980; Trope & Liberman, 2010), precisely the leverage points the SLR identifies for closing the intention–behavior gap. The prominence of this theme helps explain why positive affect translated into adoption language most reliably when accompanied by clear, feasible actions (Nabi, 2015).

4.2.2.2.4 RESPONSIBILITY CLARITY

This theme appears where respondents assign agency to specific actors: self/household (“*I/we*”), the public (“*people,*” “*community*”), firms/brands, or government. It is coded when responsibility is explicit (“*government should,*” “*companies do.*”) and not coded when the text only references feasibility or emotion. Representative responses include R11: “*Governments should be most responsible for sustainability because they set incentives and systems,*” and R09: “*Companies are doing environmental damage on the largest scale.*” The mechanism resonates with Chapter 4’s subject analysis (dominance of “*I/we/you/people*” in campaign texts) and validates the inclusion of responsibility prompts in the Chapter 5 instrument. It aligns with locus-of-control judgments in adoption formation (Ajzen, 1991).

4.2.2.2.5 SKEPTICISM AND GREENWASHING GUARD

This theme captures doubts about motives, perceived PR/marketing gloss, and overclaiming (“*profit-seeking,*” “*misleading, vague, and need more understanding*”). It is coded when authenticity is questioned and not coded when the main critique is instruction

clarity (Clarity & CTA). Representative responses include R13: *“Many of the campaigns were profit-seeking, and that feels disingenuous,”* and R39: *“Come forward with all their dirty secrets on how they are gouging people and robbing the environment and show that they are making a real and earnest change to their practices.”* The interpretation corroborates Chapter 2’s warning that perceived insincerity undermines persuasion and Chapter 3’s caution against rhetorical overreach (Foreh & Grier, 2003; Lyon & Montgomery, 2015).

4.2.2.2.6 FRICTION AND FEASIBILITY

This theme includes references to cost, time, convenience, habit, or access barriers, and to enabling conditions such as *“saves money,” “already do this,”* or *“prices rising, paychecks not keeping up.”* Representative responses include R09: *“I’m not sure this product is something I would use,”* and R27: *“This would be an easy way to keep my tap from leaking, and it would save me money as well as being a sustainable thing to do.”* The mechanism corresponds to nudge and EAST frameworks (make it Easy, Attractive, Social, Timely) in the SLR (Team, 2014; Thaler & Sunstein, 2008) and to Chapter 3’s observation that effective campaigns keep asks practicable.

4.2.2.2.7 CLARITY AND CALL-TO-ACTION

Although infrequent overall, clarity failures are decisive when present: *“too long,” “doesn’t prompt me to change or do anything,” “provide clear information on how to.”* Representative responses include statements such as *“I am not sure how to support this research or campaign.”* (R03) and *“tell people simply what it is you want them to do.”* (R36). The

interpretation reinforces the Chapter 4 insight that text-derived labels would not necessarily persist under audiovisual execution and that consumers need clear instructions or nudges to act (Fogg, 2009; Gallopel-Morvan & Crié, 2022; Thaler & Sunstein, 2008).

4.2.2.2.8 SOCIAL NORMS AND IDENTITY FIT

Normative language (“we all,” “my family,” “people”) and explicit values fit is coded here. Representative responses include R04: “I would be willing to wash my clothes with cold water to help reduce the amount of energy waste my family outputs,” and R05: “Everyone has to work towards it; it is unbalanced if it is just one side.” The mechanism directly reflects Chapter 2’s emphasis on descriptive and injunctive norms and Chapter 3’s subject architecture, which builds community via “we” and “people” (Cialdini, 2003).

4.2.2.2.9 NEGATIVE AFFECT AND AFFECTIVE DISSONANCE

When present, negative feelings typically appear as irritation or dismissal (“*ridiculous*,” “*hate ads*”) rather than fear-based urgency. Without strong efficacy and clear steps, such negativity risks avoidance. This clarifies why anger/fear/sadness underperformed in the quantitative manipulation checks and why they require strong efficacy supports to mobilize (Nabi et al., 2018).

4.2.2.2.10 INCENTIVES AND STRUCTURAL SUPPORTS

A minority of respondents explicitly requested incentives (“rewards”). Low prevalence in the free-text corpus should not be conflated with insignificance; rather, it indicates that within this stimulus set, respondents foregrounded personal feasibility unless structural constraints were salient. For example, R39 said “*Make the actions simple and easy to follow. Also show the benefit clearly. Giving small rewards also helps.*” The mechanism mediates between individual asks and institutional commitments and reflects the SLR’s dual focus on person-level and system-level levers (Gallopel-Morvan & Crié, 2022; Thaler & Sunstein, 2008).

4.2.2.3 KEY INSIGHTS FROM THE QUALITATIVE ANALYSIS

4.2.2.3.1 EMOTION SIGNALS

Affective language clusters around credibility-adjacent trust, enjoyment/humor, and anticipatory hope. Direct references to fear/sadness/anger are sparse and, when they occur, seldom co-occur with high-efficacy language. This distribution is compatible with Chapter 3’s trust–joy backbone and calibrated urgency, and it strengthens previous results: Trust, Joy, Surprise, and Anticipation passed ratings-dominance and forced-choice tests more reliably than negative emotions. Qualitatively, misalignment is often explained by “multimodal drift”: music, pacing, and brand cues re-weight perceived dominance relative to text-derived emotions assessment unless efficacy is explicit (Nabi, 2015). The recurring co-occurrence of Anticipation & Doability with Credible uplift and

Social norms shows that affect-to-intention translation is contingent on perceived control, credible mechanism, and social scaffolding, resonating with the SLR account of intention formation (Ajzen, 1991; Bandura, 1977; Gallopel-Morvan & Crié, 2022).

4.2.2.3.2 MOST INFLUENTIAL CAMPAIGNS

For the forced choice “Which campaign would most likely change something you do?” reasons were coded into the same theme set and normalized within-campaign to yield proportions. The distribution of reasons concentrates on Cold Call – Tide (31 reasons), Inglorious Fruits & Vegetables – Intermarché (23) and Cap the Tap – Reckitt Finish (15), with smaller counts for I’m an Asshole – TUSHY (4), Let’s Look After What We Love – Sky (2), and Mosquitoes vs. Mosquitoes – Quinto Andar (2). Two stimuli, Twiggy Full Circle and Fog Point Limited Edition Vodka – Hangar 1 Vodka, were not selected by any respondent as “most likely to change something they do” in this sample.

Table 36 Distribution of the themes of the reasons consumers select campaigns most likely to change their behavior.

| Campaign | Anticipation & Doability | Credible Uplift | Friction & Feasibility | Incentives & Structural Supports | Joyful Identification | Negative Affect / Dissonance | Other / Descriptive | Social Norms & Identity Fit |
|--|--------------------------|-----------------|------------------------|----------------------------------|-----------------------|------------------------------|---------------------|-----------------------------|
| Cap the Tap - Reckitt Finnish | 6 | 3 | 1 | 0 | 2 | 0 | 2 | 1 |
| Cold Call - Tide | 16 | 3 | 4 | 1 | 4 | 0 | 2 | 1 |
| Fog Point Limited Edition Vodka - Hangar 1 Vodka | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| I'm an Asshole - Tushy | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| Inglorious Fruits and Vegetables - Intermarché | 10 | 0 | 2 | 1 | 3 | 1 | 4 | 2 |
| Let's look after what we love - Sky | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Mosquitoes vs Mosquitoes - Quinto Andar | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Twiggy Full Circle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Within the three most frequently chosen campaigns (*Cold Call* by Tide, *Inglorious Fruits and Vegetables* by Intermarché, and *Cap the Tap* by Reckitt Finish), Anticipation & Doability dominates the justificatory discourse, paired with Credible uplift and Joyful identification. For example, in *Cold Call* by Tide, Anticipation & Doability account for more than half of reason tags, with credibility and positive emotions appearing as second-order supports. *Cap the Tap* by Reckitt Finish exhibits a strong Credible Uplift and Joyful Identification bundle, and *Inglorious Fruits and Vegetables* by Intermarché pair Doability with Joyful identification. This result supports the interpretation that credible uplift and actionable simplicity are more predictive of adoption talk than valence alone.

4.2.2.3.3 NEGATIVE CASES AND BOUNDARY CONDITIONS

Two boundary conditions are especially noticeable. First, admiration for creative craft does not guarantee intention when calls-to-action are diffused. Respondents explicitly reported that some spots were “*too long*” or lacked a prompt, preventing translation from liking to intention. This is consistent with the Chapter 2 and Chapter 3 cautions about rhetorical overreach and the requirement for instruction specificity (Fogg, 2009; Gallopel-Morvan & Crié, 2022, 2022; Keller, 2001).

Second, ease is not sufficient in the absence of source credibility. A subset of respondents rejected easy asks due to distrust (“*speakers not trustworthy*”), underscoring that credibility functions as a gating condition rather than a mere amplifier (Foreh & Grier, 2003; Lyon & Montgomery, 2015). A further boundary concerns locus of control: when tasks were perceived as structurally constrained, audiences reassigned responsibility to governments and firms, requesting policy and infrastructure. The implication is not to abandon individual requests, but to situate them within articulated institutional commitments, thereby aligning the responsibility frame with perceived control (Ajzen, 1991; Bandura, 1982; Chen, 2020).

4.2.2.3.4 SYNTHESIS

Across campaigns, adoption-conducive reception consistently takes the form of a bundle comprising credible mechanism, doable first step, and appropriate responsibility assignment, supported by identity-congruent positive emotion and, where relevant,

normative scaffolding. This bundle integrates the SLR's intervention map and the recommended corpus's rhetorical backbone (trust-joy with calibrated urgency; individual/collective subjects). Managerially, the implication is to institutionalize perception checks and a single open-ended "why" probe at storyboard stage; to align agency cues with perceived locus of control; and to minimize friction through clear, bite-sized nudging steps and credibility. This qualitative analysis indicates that such design choices are necessary for affect to convert into adoption-proximal intention (Ajzen, 1991; Petty, 1986; Thaler & Sunstein, 2008).

4.3 DISCUSSIONS

4.3.1 ADDRESSING THE RESEARCH QUESTIONS

RQ1: How do consumers cognitively evaluate award-winning sustainability campaigns in terms of message clarity, credibility, and perceived responsibility?

Across responses, message clarity was praised when campaigns visualized causal mechanisms (e.g., *"how the technology works"*), specified concrete actions (*"what to do next"*), and minimized extraneous claims—features known to increase processing fluency and comprehension, thereby facilitating persuasion under both heuristic and systematic routes (Oppenheimer, 2006; Petty, 1986; Schwarz, 2004). Perceived credibility rose with cues to source expertise and verifiability (third-party partnerships, certifications, open-data disclosures), in line with classic and contemporary findings that source credibility and corroborating evidence amplify message acceptance (Hovland & Weiss, 1951;

Metzger et al., 2003). Responsibility attributions were most compelling when framed as joint: firms should redesign products, logistics, and standards, while consumers take “the next best step.” This dual allocation mirrors evidence that structural enablement by organizations reduces reliance on fragile intentions and helps close attitude/intention–behavior gaps (Michie et al., 2011; Sheeran, 2002; White et al., 2019), while also dampening skepticism about “burden shifting” or greenwashing (Delmas & Burbano, 2011).

RQ2: Which discrete emotions do consumers report in response to campaigns labeled as representative of each NRC emotion, and to what extent do audience reports align with computational labels?

Self-reports concentrated on joy, trust, and anticipation, with selective fear or anger when harms were foregrounded but paired with clear, efficacious remedies—an affective mix consistent with fear-efficacy theory and the appraisal-tendency framework (Lerner & Keltner, 2000; Nabi, 2015; Witte, 1992). Alignment with Chapter 3’s NRC lexicon labels (Mohammad & Turney, 2013) was generally strongest for positively valenced categories, while divergences appeared for lexically negative categories when participants interpreted critical frames as moral urgency rather than aversive affect. Such asymmetries are expected: lexicon methods can over-index literal word cues absent of contextual appraisal, irony, negation, or target specificity (Kiritchenko et al., 2014; Mohammad, 2020). The qualitative–computational triangulation therefore indicates

convergent validity for approach-oriented/positive emotions and highlights predictable limits of lexicon-only labeling for nuanced moral emotions.

RQ3: How do mixed affective states relate to self-reported likelihood of adopting the promoted behavior and identity alignment?

Mixed approach-oriented states—especially trust combined with joy—were repeatedly linked to higher stated adoption. This pattern comports with evidence that positive discrete emotions broaden cognitive resources and action repertoires (Fredrickson, 2001), that trust reduces perceived risk in adopting novel practices (Mayer et al., 1995; Rousseau et al., 1998), and that “emotional blends” can enhance persuasive impact by simultaneously satisfying certainty and activation appraisals (Lerner et al., 2015; Williams & Aaker, 2002). Participants also described alignment between the behavior and “who I am/want to be,” echoing identity-based motivation and self-congruity accounts whereby behaviors framed as identity-consistent increase willingness and persistence (Oyserman, 2009; Reed et al., 2012; Sirgy, 1982). In short, positive associations (e.g., trust and joy) appear to function as an adoption-ready blend that links efficacy, novelty, and identity coherence.

RQ4: What themes and argumentative frames emerge in consumers’ open-ended responses, and how do these maps to the mechanisms highlighted in Chapter 2 (e.g., nudges, norms, identity, incentives, etc.)?

Four prominent mechanism families surfaced. First, social-norms mobilization (visibility of peers/coalitions; public commitments; “everyone is doing this”) tracked with robust field evidence that normative feedback and social proof shift conservation and pro-environmental behaviors (Allcott, 2011; Cialdini, 2003; Goldstein et al., 2008). Second, nudges/choice architecture were recognized when the sustainable option was made the default, simpler, or more salient, aligning with canonical findings on default effects and friction reduction (Dolan et al., 2012; Gallopel-Morvan & Crié, 2022; Sunstein, 2014; Thaler & Sunstein, 2008). Third, identity-relevant appeals resonated where behaviors were framed as congruent with valued identities (e.g., responsible and innovative local citizen), consistent with identity-based motivation and identity-label interventions (Bryan et al., 2011; Reed et al., 2012; White et al., 2019). Fourth, incentives and co-benefits (savings, convenience, community vitality) complemented intrinsic motives, in line with social marketing tenets to engineer exchanges that are easy, attractive, and rewarding (Andreasen, 2006; Carins & Rundle-Thiele, 2014; Lowe et al., 2015). Cross-cutting themes—transformative marketing (product and system redesign), co-creation/co-design (inviting stakeholders to shape solutions), and circularity/resource recovery—signaled a shift from persuading isolated choices toward re-architecting value creation with users and partners (Kirchherr et al., 2017; Ramaswamy & Ozcan, 2018; Sanders & Stappers, 2008; Vargo & Lusch, 2004). This mapping reinforces Chapter 3’s conclusion: the most compelling campaigns layer behavioral levers with structural transformation, thereby

reducing the cognitive and practical load required for sustained pro-environmental action (Michie et al., 2011; White et al., 2019).

4.3.2 THEORETICAL CONTRIBUTIONS AND IMPLICATIONS

The first contribution is to integrate emotion-specific persuasion into a broader transformative marketing logic. Whereas much climate communication alternates between efficacy-light fear appeals and purely hopeful narratives, the present pattern suggests that problem-focused emotions, especially positive, paired with efficacy cues can be associated with stronger adoption intentions. That is consistent with appraisal theories of emotion and with evidence that emotions can prompt information seeking and protective action when coupled with doable pathways (Lerner et al., 2015; Nabi, 2015). From a transformative lens, specifying which emotions covary with adoption provides a micro-foundation for marketplace designs that improve individual and collective well-being (Anderson et al., 2013), while also clarifying how campaigns can avoid well-known backfires when fear is unaccompanied by efficacy (O'Neill & Nicholson-Cole, 2009).

Second, the study contributes to social marketing by unpacking which mechanisms appear to carry the persuasive load in for-profit sustainability campaigns. The prominence of social-norm mobilization and identity-relevant framing in the Chapter 3 qualitative analysis finds an echo here in the quantitative pattern: within-person preferences for top executions track with normative and identity cues that

validate “people like me do this”. This aligns with descriptive-norm interventions that reduce energy use (Schultz et al., 2007) and with identity-based marketing showing that self-congruence amplifies persuasion (Reed et al., 2012). Social-marketing models should thus treat discrete emotion as a proximal mediator through which norms and identity shape adoption intentions, enriching transformative marketing emotions’ toolset with affective diagnostics.

Third, this project refines the debate around nudging by showing that, in field-adjacent stimuli, choice-architecture-compatible emotions (e.g., guilt tied to default-like “do the right thing” frames) correlate with adoption without requiring heavy incentives. Meta-analytic evidence suggests that nudges produce small-to-moderate effects on average, with substantial heterogeneity (Mertens et al., 2022). The present findings help specify a boundary condition: nudges that are affectively consonant with the message’s dominant emotion—and embedded in a normative identity frame—are more likely to be consequential. This suggests that nudging research should more explicitly model affective mediation rather than treating architecture as purely cognitive.

Fourth, the results carry implications for co-creation and co-design. The heightened receptivity and creativity among consumers when contributing ideas to change their own behavior implies that participatory processes which engage them in designing the solution journey may generate both tangible capability building and self-affirming identities, thereby enhancing later responsiveness to persuasive

communication (Payne et al., 2008; Prahalad & Ramaswamy, 2004; Sanders & Stappers, 2008). Co-created touchpoints can also surface local norms and remove friction that otherwise dampens the translation from intention to behavior (Sheeran, 2002; White et al., 2019).

There exist some limitations in this study. The study relies on a modest ($N = 50$) convenience sample and self-reported adoption intentions rather than observed behavior, which constrains external validity. Although bootstrap intervals mitigate parametric assumptions for Likert outcomes, latent-variable models, or ordinal-link GLMMs could incorporate measurement error and random effects more explicitly. The campaign set, while variegated, is not exhaustive; future work should experimentally manipulate emotional tone, normative content, and co-designed elements in preregistered designs that track actual downstream behaviors (e.g., donations, sign-ups, purchases). In addition, future research should test sequencing, for example, whether co-design participation increases the potency of subsequent nudges and social-norm cues via identity reinforcement—and examine heterogeneous treatment effects by ideology, values, and prior action to refine segmentation (Ajzen, 1991; White et al., 2019).

4.3.3 MANAGERIAL CONTRIBUTIONS AND IMPLICATIONS

For practitioners, the evidence supports a layered strategy that integrates transformative marketing, social marketing, nudging, and co-creation/co-design rather than treating them as substitutes. Transformative marketing reframes the purchase or

usage environment through defaults, standards, and infrastructures that remove micro-frictions and re-specify what “normal” looks like, thereby complementing norms-based messaging. The documented market-design moves—such as standards change and access platforms—offer templates for redesigning value propositions that make the sustainable choice straightforward and reputationally attractive.

Social marketing benefits when descriptive and injunctive norms are made visible through credible referents, public commitments, and collective rituals. The case evidence suggests that such mobilization is most likely to endure when coupled with enabling structures (e.g., product redesign, access infrastructures) that render the desired behavior easy and habitual, consistent with choice-architecture principles.

Nudging and choice architecture should be aligned with the emotional arc of communication. The language analyses indicate that both narratively rich and tightly repetitive styles can work. In either case, campaigns should ensure that the affective trajectory does not stop at surprise or fear but culminates in trust and approach-oriented affect alongside clearly specified, low-friction next steps. The TF-IDF and lexical richness findings provide diagnostic tools for auditing scripts to ensure conceptual clarity without sacrificing memorability.

Co-creation and co-design are presently underrepresented in the award-winning set but remain promising, particularly for equity-linked transitions where legitimacy and local fit matter. Businesses’ marketing professionals can use participatory design both to

surface barriers that undermine feasibility perceptions and to pre-commit communities and partners to the social norm being advanced. The chapter's coding schema and rule-guided exemplars offer practical checklists for creative briefs and for post-hoc audits of executed campaigns.

Finally, the quantitative and qualitative components examine whether target emotions are perceived and whether stated adoption likelihood tracks the theorized "trust-joy + feasible next steps" configuration. The qualitative analysis further probes audience attributions of credibility, feasibility, identity, and agency. This progression moves from what leading campaigns do and say (Chapter 3) to how audiences respond and why they claim they would act (Chapter 4), thereby closing the loop from mechanism identification to audience-side diagnostics.

5 CHAPTER 5: DISCUSSION AND CONCLUSION

This chapter integrates evidence from the systematic literature review in Chapter 2, the corpus analysis of award-winning sustainability campaigns in Chapter 3, and the audience study in Chapter 4 to develop a comprehensive account of how businesses can catalyze durable pro-environmental behavior among consumers. In short, this chapter positions transformative marketing, social marketing, nudges and choice architecture, and co-creation and co-design as complementary levers that operate at micro, meso, and macro levels as illustrated in the aggregated model in Figure 78: social marketing, literacy and market education, up-, mid-, and downstream orchestration, self-efficacy and co-design, transformative marketing, and crowdsourcing as the scaffolding that connects theory to marketplace action and social development (Bandura, 1982; Gordon, 2013; Prochaska & DiClemente, 1982; White et al., 2019). The synthesis across chapters supports a layered logic of change wherein market architectures carry much of the burden for making sustainable options normal and easy; social marketing renders those options socially legible and desirable; nudges reduce micro-frictions in affectively consonant ways; and co-creation secures local legitimacy, capability-building, and pre-commitment among stakeholders (Allcott, 2011; Cialdini, 2003; Kumar, 2018; Mertens et al., 2022; Payne et al., 2008; Ramaswamy & Ozcan, 2018).

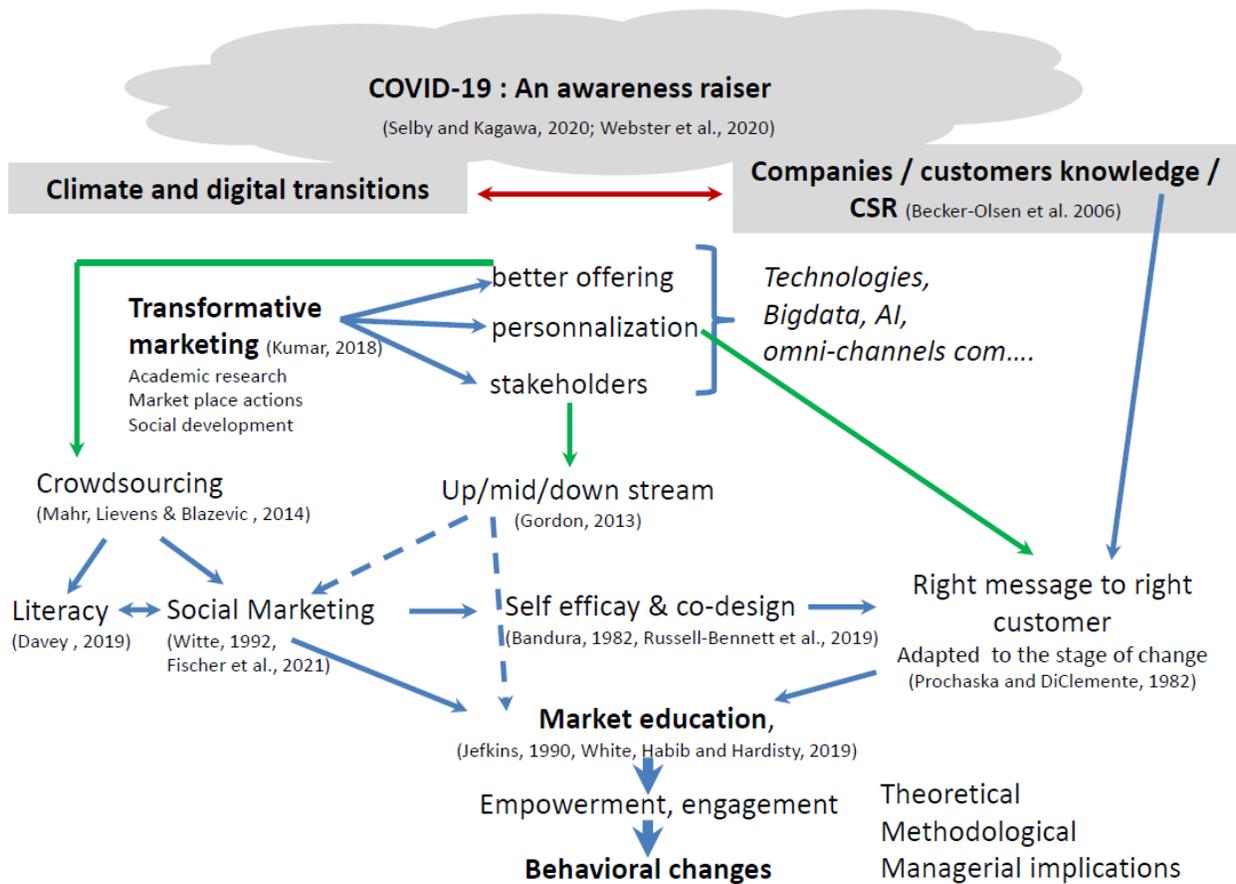


Figure 78 Transformative Marketing Pathway to Sustainable Consumer Behavior Change

5.1 KEY INSIGHTS

5.1.1 A LAYERED ARCHITECTURE OF CHANGE COORDINATED ACROSS LEVELS

The findings establish that the most robust interventions are multi-level action designs that deliberately coordinate upstream and midstream mechanisms with downstream behavioral support. Transformative marketing specifies market-level arrangements—defaults, standards, infrastructures, and platforms—that alter what choices are available and salient, thereby redefining what counts as normal in a category (Kumar, 2018; Thaler & Sunstein, 2008). Social marketing mobilizes credible referents,

community partners, and public commitments to generate descriptive and injunctive norms that make the redesigned norm socially desirable and identity-congruent (Andreasen, 2006; Cialdini, 2003; Schultz et al., 2007). Nudges and choice architecture then reduce decision friction at the point of choice, increasing the likelihood of action within the transformed context (Dolan et al., 2012). Co-creation and co-design add a participatory layer that surfaces local constraints, builds capability, and confers procedural legitimacy—factors that can materially affect adoption trajectories (Payne et al., 2008; Ramaswamy & Ozcan, 2018; Russell-Bennett et al., 2019). This layered architecture is congruent with Figure 78’s insistence on up-, mid-, and downstream orchestration and on the integration of design, literacy, and stakeholder alignment (Gordon, 2013; White et al., 2019).

5.1.2 TRANSFORMATIVE MARKETING AS MARKET ARCHITECTURE RATHER THAN MESSAGE ALONE

The corpus analyzed in Chapter 3 documents market-shaping moves—such as open standards, access platforms, package-free and refill infrastructures, and algorithmic routing that reduces environmental externalities—that directly target hassle costs and the structural unavailability of low-impact options. These designs reflect a shift from treating marketing as persuasion toward treating it as the engineering of contexts in which the sustainable choice is easy, identity-consistent, and reputationally attractive (Kirchherr et al., 2017; Kumar, 2018). By changing defaults and affordances, transformative marketing reduces reliance on fragile intentions and attenuates the attitude/intention–behavior gap

identified in the literature (Sheeran, 2002; Thaler & Sunstein, 2008). When transformative marketing is present, persuasive appeals work within a redesigned choice set, so that the message, the moment, and the market structure mutually reinforce one another (Anderson et al., 2013; White et al., 2019).

5.1.3 SOCIAL NORMS AND IDENTITY AS MESO-LEVEL DRIVERS

Social marketing in the corpus frequently constructs social legibility through public commitments, visible participation, and the activation of credible referents, thereby aligning descriptive and injunctive norms (Allcott, 2011; Cialdini, 2003; Lowe et al., 2015; Schultz et al., 2007). These campaigns often situate sustainable behavior within identity-relevant frames, consistent with evidence that identity-based appeals can elevate motivation and persistence when they are authentic and feasible (Bryan et al., 2011; Reed et al., 2012). Norm interventions appear most effective when accompanied by feasibility cues and enabling infrastructures; without such support, norm messages risk being perceived as moralizing or as shifting responsibility onto consumers without adequate structural change (Akenji, 2014; Delmas & Burbano, 2011; Luchs et al., 2010). The implication is that managers should treat norms as meso-level drivers embedded in market designs rather than as stand-alone messages (Gordon, 2013; White et al., 2019).

5.1.4 NUDGING AND THE REDUCTION OF FRICTION

Evidence across the chapters indicates that nudges are substantially more consequential when embedded in transformed contexts that already lower cognitive and

logistical burdens (Mertens et al., 2022; Thaler & Sunstein, 2008). Moreover, the consumers study in Chapter 4 suggests a boundary condition: nudges that are affectively consonant with the campaign’s dominant emotional arc—especially those that culminate in trust and joy—are associated with stronger adoption intentions than nudges that sit at odds with the emotional tone (Fredrickson, 2001; Lerner et al., 2015). The pattern supports a micro-foundation in which the affective state mediates the translation of architecture into action, especially when accompanied by clearly specified, low friction “next steps” that minimize intention decay (Michie et al., 2011; Sunstein, 2014).

5.1.5 RESPONSIBILITY FRAMING THAT AVOIDS OVER-PRIVATIZATION

A recurring issue in sustainability communications is responsibility displacement, where firms position individuals as primary agents of change while leaving product and system designs intact (Delmas & Burbano, 2011). The present synthesis supports a shared agency framing in which organizations bear obligations to redesign offerings, logistics, and standards, while consumers are invited to take feasible next steps within that enabling environment. Such dual allocation reduces skepticism and accusations of greenwashing, and it improves attitude/intention–behavior translation by aligning internal efficacy beliefs with external affordances (Bandura, 1982; Sheeran, 2002; White et al., 2019). The Chapter 4 results further suggest that trust—an affect that depends on perceived benevolence, integrity, and ability—plays a central role in consumer acceptance of shared-responsibility frames (Mayer et al., 1995).

5.1.6 EMOTION AS A PROXIMAL MEDIATOR OF ADOPTION

Chapter 4 identifies mixed approach-oriented emotions, particularly trust combined with joy, as an “adoption-ready” configuration that links efficacy, positive anticipation, and identity coherence. This finding is consistent with research showing that discrete emotions shape attention, risk perception, and information processing in ways that either facilitate or undermine behavior change (Lerner et al., 2015; Nabi, 2015). When fear or anger is used, effectiveness depends on pairing threat with clear efficacy pathways; fear appeals that lack efficacy are prone to defensive avoidance and backfire (Michie et al., 2011; O’Neill & Nicholson-Cole, 2009). The overall implication is that emotional design should be treated as an integral component of market and message architecture—culminating in positive, efficacy-laden states that are paired with specific, low-friction actions (Fredrickson, 2001; White et al., 2019).

5.1.7 CO-CREATION AND CO-DESIGN AS CAPABILITY AND LEGITIMACY BUILDING

Although co-creation and co-design appear less frequently than norms or market redesign in award-winning practice, the theoretical and practical significance of participatory processes is clear. Co-design builds user capabilities and confidence, surfaces local tacit knowledge, and creates self-affirming identities that can amplify subsequent norm and nudge interventions (Payne et al., 2008; Russell-Bennett et al., 2019; Sanders & Stappers, 2008). It also produces early ownership and legitimacy, which reduce resistance and strengthen reputational diffusion across communities and supply

chains (Lowe et al., 2015; Ramaswamy & Ozcan, 2018). Chapter 3 patterns, together with Chapter 4 diagnostics, imply a sequencing logic in which participatory design precedes and conditions later persuasive steps.

5.1.8 PERSONALIZATION, LITERACY, AND MARKET EDUCATION AS ENABLERS

Figure 78 highlights literacy, market education, personalization, and the right message to the right audience at the right stage of change as crosscutting enablers (Gordon, 2013; Prochaska & DiClemente, 1982). The SLR indicates that personalization calibrated to values and moral foundations can increase receptivity while reducing reactance, especially when supported by clear efficacy cues (Michie et al., 2011; White et al., 2019). Market education and literacy initiatives are essential for countering greenwashing fatigue and information overload; they help consumers interpret claims, navigate trade-offs, and maintain confidence in credible standards and certifications (Alrawabdeh, 2024; Davey & Grönroos, 2019; Delmas & Burbano, 2011; Jefkins, 1991).

5.1.9 ADDRESSING THE INTENTION-BEHAVIOR GAP AND SOCIAL DESIRABILITY

The literature consistently documents a gap between stated intentions and observed behavior, driven by planning fallacy, present bias, and contextual friction (Sheeran, 2002; Thaler & Sunstein, 2008). Chapter 3 points to two recurring countermeasures in practice: feasibility signaling through standards, infrastructure, and explicit next steps; and public legibility and commitment via credible referents, visible

participation, and collective rituals (Allcott, 2011; Schultz et al., 2007; White et al., 2019). The consumers study employed anonymity to reduce social desirability bias in self-reports, consistent with survey methodology evidence that sensitive topics benefit from designs that minimize self-presentation pressures (Tourangeau & Yan, 2007). These settings recommend designs that align internal motivation with external support while structurally dampening social desirability bias.

5.1.10 UNDERUSED BUT PIVOTAL LEVERS AND THE OPPORTUNITY FOR INTEGRATION

Quantitative distributions in the corpus indicate the under-representation of co-creation, which consumers in Chapter 3 are very receptive of, participatory governance, and regulatory strategies relative to norms and transformative marketing. Given the theoretical role of co-design in capability-building and legitimacy, and the role of upstream policy in locking in defaults, these absences represent missed opportunities to strengthen durability and equity (Gordon, 2013; Payne et al., 2008; Russell-Bennett et al., 2019). Integrations that combine early co-design with subsequent norm signaling and default changes are especially promising for categories where consumers face budget, knowledge, or access constraints (Anderson et al., 2013; Kirchherr et al., 2017).

5.2 THEORETICAL CONTRIBUTIONS AND IMPLICATIONS

5.2.1 AN INTEGRATED TMSM-CD FRAMEWORK

This dissertation advances a unifying framework that integrates Transformative Marketing, Social Marketing, Nudging, and Co-creation/Co-design (TMSM-CD) across

upstream, midstream, and downstream levels and across stages of change. Chapter 3 contributes an empirically grounded typology of levers—norms, market design, choice architecture, social marketing for public good, and co-creation—together with enabling infrastructures and credibility devices (Andreasen, 2006; Kumar, 2018; Payne et al., 2008; Thaler & Sunstein, 2008). The typology reveals complementarity rather than substitutability: norms and transformative marketing frequently co-occur, while co-creation is under-used despite its theorized role in increasing the potency of subsequent interventions (Ramaswamy & Ozcan, 2018; Russell-Bennett et al., 2019).

5.2.2 EMOTION AS A PROXIMAL MEDIATOR IN MARKETING DESIGN

Chapter 4 links emotion-specific persuasion to broader market design by demonstrating that positive, approach-oriented emotions paired with efficacy cues are associated with stronger adoption intentions. This evidence supplies micro-foundations for transformative marketing: emotional states alter cognitive scope and behavioral readiness, which can either unlock or stymie the uptake of redesigned offerings (Fredrickson, 2001; Lerner et al., 2015). Theoretically, the finding enriches social marketing models by positioning discrete emotions as potential mediators between identity-relevant norms and adoption intentions, contingent on visible feasibility. It also refines fear-appeal debates by emphasizing the centrality of efficacy for constructive emotional trajectories (Michie et al., 2011; O'Neill & Nicholson-Cole, 2009).

5.2.3 REFRAMING NUDGING THROUGH AFFECTIVE CONSONANCE AND NORMATIVE EMBEDDING

The dissertation specifies a boundary condition for nudging: choice architecture is most effective when its affect aligns with the campaign’s emotional arc and when it is embedded in an identity-consistent normative frame. This reframing integrates insights from affective science and social identity research with behavioral economics, suggesting that models of nudging should include affective mediation rather than treating architecture as purely cognitive (Lerner et al., 2015; Mertens et al., 2022; Reed et al., 2012). Such a perspective predicts heterogeneous treatment effects across values and identities and motivates designs that explicitly evaluate affect–architecture interactions.

5.2.4 METHODOLOGICAL CONTRIBUTIONS AND LIMITS

Methodologically, this dissertation closes the loop from mechanism identification to audience-side diagnostics. The pipeline combines qualitative–computational coding of marketing campaigns for behavior changes rhetoric and design with an audience study that quantifies associations between mixed affective states and adoption intentions, using bootstrap intervals to mitigate distributional assumptions. The limitations include modest sample size, reliance on self-reported intentions rather than observed behavior, and the need for latent-variable and random-effects models to account for unobserved heterogeneity (Sheeran, 2002). Future work should include preregistered field experiments that link message and design manipulations to behavioral telemetry—

signups, donations, purchases, and repeat usage—and should systematically test sequencing and heterogeneity predictions (Anderson et al., 2013; White et al., 2019).

5.3 MANAGERIAL CONTRIBUTIONS AND IMPLICATIONS

5.3.1 A PORTFOLIO STRATEGY THAT INTEGRATES MARKET DESIGN, NORMS, NUDGES, AND CO-DESIGN

Managers should adopt a portfolio strategy rather than privileging a single lever. Transformative marketing should reframe the purchase or usage environment through defaults, standards, platforms, and infrastructures that reduce friction and redefine normal practice (Kumar, 2018; Thaler & Sunstein, 2008). Social marketing should make the redesigned behavior socially legible and aspirational by leveraging credible referents, public commitments, and visible participation (Andreasen, 2006; Cialdini, 2003; Schultz et al., 2007). Nudging should smooth micro-decisions with cues and simplifications that are affectively aligned with the campaign narrative (Dolan et al., 2012; Sunstein, 2014). Co-creation should be deployed early to surface constraints, co-specify solutions, and pre-commit stakeholders, thereby raising the effectiveness of subsequent communications and architectural changes (Payne et al., 2008; Ramaswamy & Ozcan, 2018).

5.3.2 STAGE-OF-CHANGE SEGMENTATION AND UP-, MID-, AND DOWNSTREAM ORCHESTRATION

Operationalizing the model proposed in Figure 78 requires mapping audiences to stage-of-change segments and coordinating interventions at upstream policy and

standards levels, midstream industry and community partnerships, and downstream consumer touchpoints (Gordon, 2013; Prochaska & DiClemente, 1982). Market education and literacy should be integrated with these efforts to reduce confusion and strengthen self-efficacy, particularly where claims proliferation risks eroding trust (Bandura, 1982; Delmas & Burbano, 2011). The orchestration logic implies that marketing, operations, policy, and partnerships functions must coordinate, not merely align messages.

5.3.3 MESSAGE ARCHITECTURE AND THE TRUST–JOY CONFIGURATION WITH FEASIBLE NEXT STEPS

Businesses' marketing for pro-environmental behavior change should be designed so that the affective trajectory culminates in trust and approach-oriented emotion, anchored by credible evidence of feasibility and clearly specified next steps. The audience study's association between trust–joy and higher adoption intentions mirrors research linking positive affect and broadened action repertoires (Fredrickson, 2001; Lerner et al., 2015). Clarity about the next feasible action reduces intention decay and supports habit formation when combined with transformed environments (Michie et al., 2011; Sunstein, 2014). This implication also means that creative development and service/operations design are mutually dependent.

5.3.4 RESPONSIBILITY AND LEGITIMACY THROUGH SHARED AGENCY

Responsibility should be framed as shared: organizations redesign products, services, and infrastructures while consumers undertake feasible next steps. This approach bolsters legitimacy and trust and dampens accusations of burden shifting,

moralizing, or consumer scapegoatism (Akenji, 2014; Delmas & Burbano, 2011; Luchs et al., 2010; Mayer et al., 1995). Where possible, open standards and interoperable infrastructures should be used to make structural enablement visible and verifiable, thereby supporting reputational cascades across ecosystems (Kirchherr et al., 2017; White et al., 2019).

5.3.5 CO-DESIGN AND CROWDSOURCING TO SURFACE LOCAL CONSTRAINTS AND BUILD OWNERSHIP

A co-design playbook should be institutionalized to surface local constraints, incorporate lived experience, and produce early ownership among users and partners (Payne et al., 2008; Sanders & Stappers, 2008). Crowdsourcing for consumers' behavioral changes ideas, as conducted in Chapter 4, can broaden ideation and legitimize emergent norms prior to scale-up, particularly when linked to transparent selection criteria and pilot testing (Mahr et al., 2014; Russell-Bennett et al., 2019). Sequencing co-design before mass communication increases the probability that subsequent norm and nudge interventions will be read as empowering rather than patronizing (Bandura, 1982; Reed et al., 2012).

5.3.6 MEASUREMENT AND GOVERNANCE FOR DURABLE OUTCOMES

Measurement should move beyond attitudinal shifts to behavioral telemetry—e.g., signups, donations, purchases, usage, and repeat behavior, etc.—with pre-registered designs and appropriate causal identification strategies where feasible (Anderson et al., 2013; Michie et al., 2011). Governance devices and open standards can anchor inter-

business descriptive norms, thereby amplifying system-level effects (Kirchherr et al., 2017; Schultz et al., 2007). Regular audits using coding schemas that capture consumers' understanding, affective contour, feasibility assessment, and identity alignment provide a disciplined basis for iteration (Mertens et al., 2022; White et al., 2019).

In conclusion, this dissertation demonstrates that sustainable behavior change by businesses' marketing activities is plausible. It is most credible and durable when marketplace architectures do the heavy lifting, social marketing renders sustainable action socially legible and desirable, nudges reduce friction in emotionally consonant ways, and co-creation builds local fit and legitimacy. This layered logic operationalizes the Transformative Marketing Pathway to Sustainable Consumer Behavior Change illustrated in Figure 78 by connecting academic theory to diagnostics and to managerial roadmaps that coordinate upstream, midstream, and downstream efforts (Gordon, 2013; Prochaska & DiClemente, 1982; White et al., 2019, p. 201). The project closes the loop from what leading campaigns do and say, to how audiences respond, and why they report that they would act, while delineating a research and practice agenda centered on sequencing, heterogeneity, market literacy, and field-based behavioral outcomes.

5.4 LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

5.4.1 LIMITATIONS

This dissertation assembled evidence across a systematic literature review (Chapter 2), an analysis of award-winning campaigns (Chapter 3), and a mixed-methods

audience study (Chapter 4), and then integrated insights (Chapter 5). Several limitations qualify the interpretation and scope of these findings.

First, the systematic literature review applied explicit inclusion criteria and temporal cut-offs. Although these choices support transparency and replicability, they may under-represent emerging or adjacent work published outside ranked outlets or after the final search windows. Consequently, estimates of mechanism prevalence and effectiveness should be read as conservative snapshots rather than exhaustive inventories.

Relatedly, the body of records excluded by design constitutes a theoretically rich and underutilized reservoir. During screening, titles and abstracts were manually reviewed and organized into thematic groupings to map adjacent knowledge domains—even when they fell outside the inclusion criteria (e.g., research agendas, greenwashing, and public- or NGO-led interventions). Although not analyzed in depth here, this indexed corpus remains highly relevant to sustainable consumption and behavior change and could support complementary syntheses or comparative sampling frames in future work (cf. Appendix 9.1).

Second, the corpus of campaigns focuses on award-winning practice. This lens clarifies what persuasive and design logics are most celebrated by marketing industry experts, but it also introduces selection effects: campaigns that are resourced, aesthetically polished, or institutionally networked are more likely to be archived and

recognized. The distribution of mechanisms in practice may therefore be broader than what the corpus reveals.

Third, natural-language and affective analyses necessarily compress meaning. Lexicon- and model-based approaches capture salient regularities across large volumes of text and transcripts but can miss irony, culturally specific idioms, or multi-layered responsibility framings. Classification errors, while mitigated through manual checks, remain possible.

Fourth, the audience study prioritizes internal validity over population generality. The sample is modest and demographically concentrated in working-age groups; outcomes are self-reported intentions and perceptions rather than observed behavior; exposure is controlled rather than ecological. These features support mechanism probing but limit external validity to broader populations, contexts, and time horizons.

Fifth, the program is cross-sectional at the level of behavior. The hierarchy-of-effects logic distinguishes intention, trial, and maintenance, yet the empirical components cannot track long-run behavior or habit consolidation. The durability of effects, especially for co-design, defaults, and norm visibility — remains to be demonstrated in longitudinal settings.

Finally, the thesis takes a for-profit managerial vantage point. This focus enables concrete guidance for firms, but it necessarily brackets regulatory instruments, macro-economic shocks, and civil-society mobilizations that can amplify or constrain firm-led

interventions. Interdependencies across these levels merit dedicated study beyond the present scope.

5.4.2 DIRECTIONS FOR FUTURE RESEARCH

Building on these limitations and the synthesis, several avenues appear both tractable and valuable.

From intentions to behavior and maintenance: Future studies should link message and market-design manipulations to behavioral telemetry (e.g., verified sign-ups, purchases, repeat usage, waste sorting, energy consumption, etc.), ideally with pre-registered designs and sufficient follow-up to assess long-term maintenance.

Broader, comparative corpora: Extending the campaign corpus beyond award repositories to include community initiatives, SME programs, and non-awarded firm efforts would reduce selection bias. Diverse corpora would enable tests of cultural moderators in responsibility framing, identity appeals, and norm visibility.

Practitioner catalog and field validation: This dissertation consolidates an actionable catalog of managerial practices drawn from the included studies and synthesized in Appendix 9.2—defaults and standards that reduce friction, norm-building and market education, affect-aligned nudges with clearly specified next steps, co-design to surface constraints and build ownership, and measurement/governance routines. Future work should translate this catalog into auditable checklists and modular playbooks and evaluate them through field trials across categories and segments with

behavioral telemetry. In the interim, managers can use this catalog as an ideation scaffold to design pro-environmental campaigns tailored to their constraints and audiences (Michie et al., 2011; Payne et al., 2008; Thaler & Sunstein, 2008; White et al., 2019).

Richer language and interaction models: Advances in computational pragmatics and dialogue modeling can capture irony, indirectness, and multi-party responsibility claims more faithfully than bag-of-words or lexicon methods. Benchmarking such models against expert coding—especially for contested constructs such as greenwashing, empowerment, or burden-shifting—would improve construct validity.

Responsibility framing and multi-level governance tests: Chapter 4 shows that respondents primarily assign responsibility to governments and firms, with bounded but meaningful roles for consumers, a pattern consistent with polycentric and “smart regulation” perspectives (Gunningham & Sinclair, 1999; Ostrom, 2010). Future work should use pre-registered, multi-arm field experiments and survey experiments that orthogonally manipulate (a) responsibility framing (state-led, firm-led, consumer-led, shared), (b) visibility of structural enablement (e.g., standards, defaults, or infrastructure in place versus absent), and (c) market-design elements at the point of choice. Outcomes should include trust, perceived fairness, self- and collective-efficacy, and behavioral telemetry (e.g., choice share, sign-ups, repeat use). Moderation by political trust, ideology, and perceived economic constraint merits explicit tests, given concerns about

burden-shifting and the “individualization of responsibility” (Akenji, 2014; Delmas & Burbano, 2011; Gunningham & Sinclair, 1999; Mazzucato, 2018; Ostrom, 2010)

Co-design and co-creation outcomes: Co-creation and co-design appear under-used yet promising. Field experiments that prioritize underserved communities, measure capability gains alongside behavior and report distributional impacts would align inquiry with equity-sensitive transitions and test whether participatory design increases the elasticity of subsequent adoption.

These directions extend the thesis’s core message: durable change emerges when market architectures make sustainable conduct normal and easy, social marketing renders it legible and desirable, micro-interventions reduce friction in emotionally consonant ways, and participatory design secures local fit and legitimacy. The next wave of research should move from triangulated inference to longitudinal demonstration, from celebrated exemplars to the full practice execution, and from self-reports to behavior measured in the field.

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9 APPENDICES

9.1 EXCLUDED LITERATURE – LANDSCAPE AND PROCEDURE

The initial results are screened twice to evaluate their ability to answer the research question, repeated as follows.

RQ: "What are the actions, backed by empirical findings, can businesses do, in applying marketing concepts, to change consumers' behaviors to be sustainable (or pro-environmental)?"

Based on the above-mentioned categories of market intervention of educational and promotional, we re-categorize such interventions as "promotional" or "non-promotional." Non-promotional interventions can be educational or not but are not inducive to profit creation for. Therefore, to ensure the integrity of this research, we only include non-promotional market interventions. In other words, only pro-environmental behaviors that are non-inducive to the purchase of certain products or services labeled as green/ecological/sustainable/etc. are studied. We exclude all promotional market interventions. For example, if the goal of an article's market intervention is to promote a certain product with a label such as "green" or "natural," we do not include them. In other words, these interventions must not incur any monetary involvement on the part of consumers and do not financially benefit any organization.

Additionally, as the research question is set for for-profit brands, only studies that include market interventions from these brands are analyzed. Accordingly, various

interventions from non-profit organizations, governmental agencies, and special groups are excluded. Normally, articles that are only included in the WOS database belong to this category. There is an intervention to achieve a certain behavioral change, but it does not originate from a for-profit firm initiative. In short, this paper analyzes transformative marketing interventions from commercial brands to change consumers' behaviors.

Using the predefined research question to guide our selection strategies, we screen all the documents via their titles and/or abstracts and/or full texts, whichever is more conclusive, to determine their relevancy and eventual inclusion in the final sample. There are two stages to this process.

In the first stage, any article that is (1) clearly unrelated to the research question or (2) is a review of any kind is excluded. Unrelated documents are understood as those that do not directly answer our research question. In addition, as the aim of this document is to perform an SLR, any other review – with redundant information, is excluded.

We use a tool named Sciwheel (Sciwheel, 2023) to help with screening the articles, using features such as tags and comments to justify the inclusion or exclusion of specific articles. Reviews are tagged as “E1 – Review”, while unrelated documents are tagged as “E1 – Unrelated”. The justifications are provided for articles whose exclusion is not straightforwardly evident, most of which are in the E2 tags. All these justifications can be found in a document named Screening – Sciwheel.

- E1 – Unrelated: These documents discuss a variety of topics related to sustainability, whether in marketing or not. However, their research scope and focus clearly differ from that of ours. The topics of these documents could be, for example, choice behavior experiment with circular business models, machine learning, simulation modeling, value-based health plan purchasing, cleaner production policies for companies, etc.
- E1 – Review: These articles provide reviews of any type on a variety of different research problems. There may also be special issues combining various articles into one, with the point of mapping different themes in the extant literature. Since they do not provide any empirical data, these articles are excluded. In this paper, using the definition from Thomas (2021, p. 36), we understand “empirical” as “using observations or experiments” to verify assumed hypotheses. Accordingly, these documents do not provide evidence-based actions that marketers can do (i.e., market education and/or intervention) to nurture pro-environmental behaviors among consumers using marketing.
- E1 – Filtered: These tags only appear in the snowballed documents. Since these documents, found by the snowballing technique, did not go to the rigorous filtering standard as the articles searched via the databases, they are analyzed using the PRISMA-P protocol to ensure their conformity to the

protocol as any other document found via databases. These articles, for example, could be non-peer-reviewed booklets, conference proceedings (grey literature), books, etc.

Only documents related to the themes of sustainability or pro-environmentalism are evaluated in the second stage. Their scope is then compared to that of the research question. The rationales for exclusion, if applicable, are included for clearer explanations on all articles included in this stage. All excluded articles are tagged with “E2 – Out of scope”. The reasons for their exclusion could include one or several points below, with their Sciwheel tags in parentheses.

The reasons for exclusion of some of the articles may belong both to the first and second stages. Nonetheless, whenever this is the case, only the reasons for exclusion from the first stage are included to prevent confusion. For example, an article may be a review (could be tagged with “E1 – Review”) and contain no experiment (could be tagged with “E2 – 5 No experiment”). However, as an article is omitted once, it is therefore logical that it is excluded as early as reasonable. Therefore, this article will be tagged “E1 – Review” and excluded on the grounds of being a review, even though if it were to be included in the second-stage screening, it would still have been excluded anyway for “E2 – 5 No experiment”.

9.1.1 CONSUMER PSYCHOGRAPHICS (E2 – 1 PSYCHOGRAPHICS)

The cluster analysis result for this group is as follow (MO = 23; N = 6364; AN = 84; NA = 50/60%; R = 1.0; X = “author”, “article”, “insight”, “order”, “originality value”, “participant”, “person”)

- Cluster 1: attention, company, concern, consumer, CSR, customer, design methodology approach, environment, firm, gap, hotel, perception, practice, preference, type, value
- Cluster 2: adoption, antecedent, behavior, determinant, food, food waste, household, intention, model, motivation, subjective norm, theory, tpb, waste
- Cluster 3: business, environmental concern, green product, information, price, product, purchase intention, sustainable product
- Cluster 4: china, country, influence, sustainable consumption, sustainable development

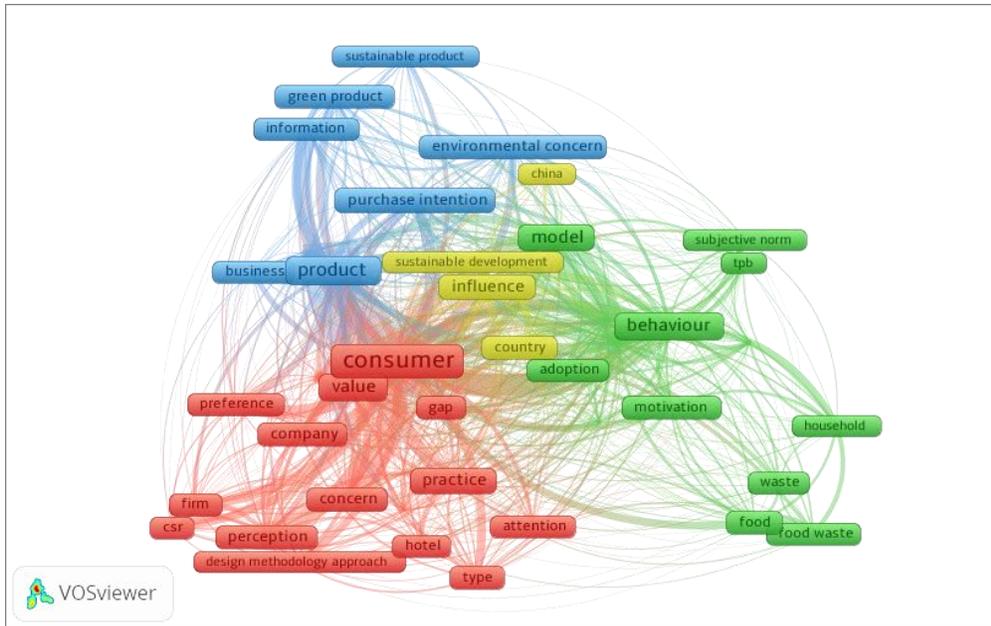


Figure 79 E1 - Psychographics (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

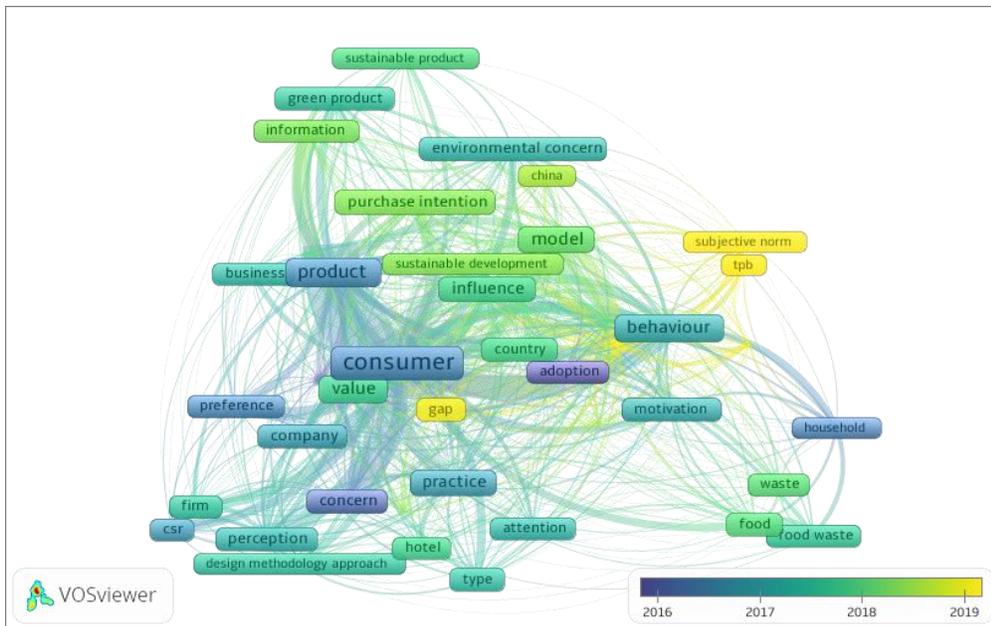


Figure 80 E1 - Psychographics (Overlay visualization) - According to this visualization, the current research direction in this field is to identify and address some research gaps in consumer behavior using the theory of planned behavior and subjective norms as theoretical frameworks.

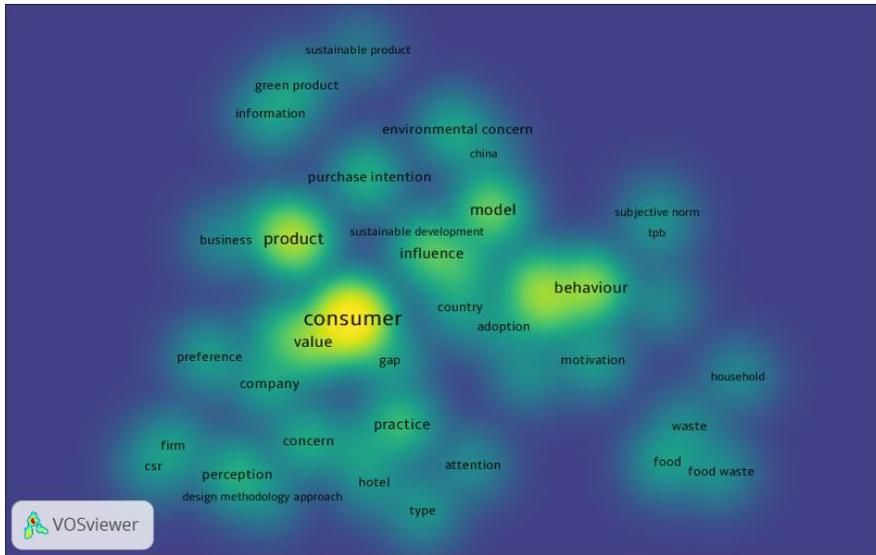


Figure 81 E1 - Psychographics (Density visualization) – The visualization shows that the key research topics in this group are the consumer values that influence their choices and the discrepancy between their values and their actual behavior.

Based on these keywords and clusters, it can be inferred that the articles talk about the subject of sustainability, which indicates that our research has followed the correct direction. The sustainability theme here affects various aspects of human life, such as consumption, business, environment, and waste. Following is the interpretation and analysis of each cluster based on our best judgement.

Cluster 1 seems to focus on the relationship between consumers and firms in the context of corporate social responsibility (CSR) and environmental issues. The keywords suggest that the articles explore how consumers' perceptions, preferences, and values influence their attention and concern towards the CSR practices and environmental impacts of several types of firms, such as hotels and companies. Another interpretation is that consumers' perceptions, preferences, and values are not always aligned with their actual behavior when it comes to CSR and environmental issues. For example, consumers

may express an elevated level of concern and preference for firms that are socially and environmentally responsible, but they may not always choose them over other firms that offer lower prices, higher quality, or more convenience. This may create a gap between consumers' expectations and firms' performance, which can affect the customer satisfaction and loyalty of the firms. Therefore, firms need to use a design methodology approach to understand and address the needs and wants of their consumers, and to communicate and demonstrate their CSR and environmental practices effectively.

Cluster 2 appears to concentrate on the factors that affect the adoption of food waste reduction behavior among households. The keywords indicate that the articles use the theory of planned behavior (TPB) as a model to examine how antecedents, determinants, and motivations influence the intention and behavior of individuals and groups regarding food waste. The keywords also suggest that the articles consider the role of subjective norms, which are the perceived social pressures and opinions of others, in shaping the food waste reduction behavior. An additional interpretation could be that food waste reduction behavior is influenced by multiple factors at various levels. For example, food waste reduction is not only determined by the individual's own attitudes, beliefs, and motivations, but also by the subjective norms of their family, friends, and society. Therefore, to promote food waste reduction behavior, interventions need to target not only the individual, but also the social and environmental contexts that shape the behavior.

Cluster 3 seems to deal with the impact of information and price on the purchase intention of green and sustainable products. The keywords imply that the articles investigate how businesses can use information as a marketing tool to increase the environmental concern and awareness of consumers and persuade them to buy products labeled as green and sustainable. The keywords also indicate that the articles analyze how price affects the purchase intention of consumers, and whether they are willing to pay a premium for products that are more environmentally friendly and sustainable. Another potential insight from this cluster is that information and price are not the only factors that influence the purchase intention of products labeled as green and sustainable. For example, information and price may have different effects on different segments of consumers, depending on their level of environmental concern and awareness, their perceived value and quality of the products, and their personal and situational factors. Therefore, businesses need to segment and target their consumers based on their characteristics and preferences, and to differentiate and position their products based on their benefits and features.

Cluster 4 looks like it focuses on the influence of country factors on the sustainable consumption and development in China. The keywords suggest that the articles examine how China as a country, with its unique political, economic, social, and cultural characteristics, influences the sustainable consumption and sustainable development of

its people and resources. The keywords also imply that the articles compare China with other countries in terms of their sustainability performance and challenges.

Overall, these articles stop at the theorization of the minds of consumers – focusing only on exploring the numerous nuances of their psychographics (e.g., trust, satisfaction, aspirations, culture, brand loyalty, willingness to pay for certain products labeled as “green”, attitudes, intentions, etc.) and how they might influence certain adoptions of sustainable practices and/or products. However, they do not assemble these insights into a form of marketing intervention/market education campaign to evaluate the effectiveness of proposed marketing practices to promote targeted pro-environmental behaviors among consumers. Their focus is solely on understanding the psychographic factors prior to actual behavioral outcomes, our focus. These articles do not provide validated results showing specific marketing actions executable by businesses’ marketing efforts to encourage pro-environmental behavior among consumers. Therefore, these articles do not answer our research questions and are not included.

9.1.2 DEMARKETING (E2 – 2 DEMARKETING)

The cluster analysis result for this group is as follow (MO = 2; N = 251; AN = 39; NA = 23/60%; R = 0.2; X = “article”, “paper”)

- Cluster 1: anticonsumer, anticonsumption, challenge, conspicuous anticonsumption, consumption, embeddedness, insight, practice, symbolic benefit

- Cluster 2: behaviour, bottom, cultural theory, fast fashion, relation, solution, value action gap
- Cluster 3: ad attitude, further downstream effect, home page content, medium, news browsing context.

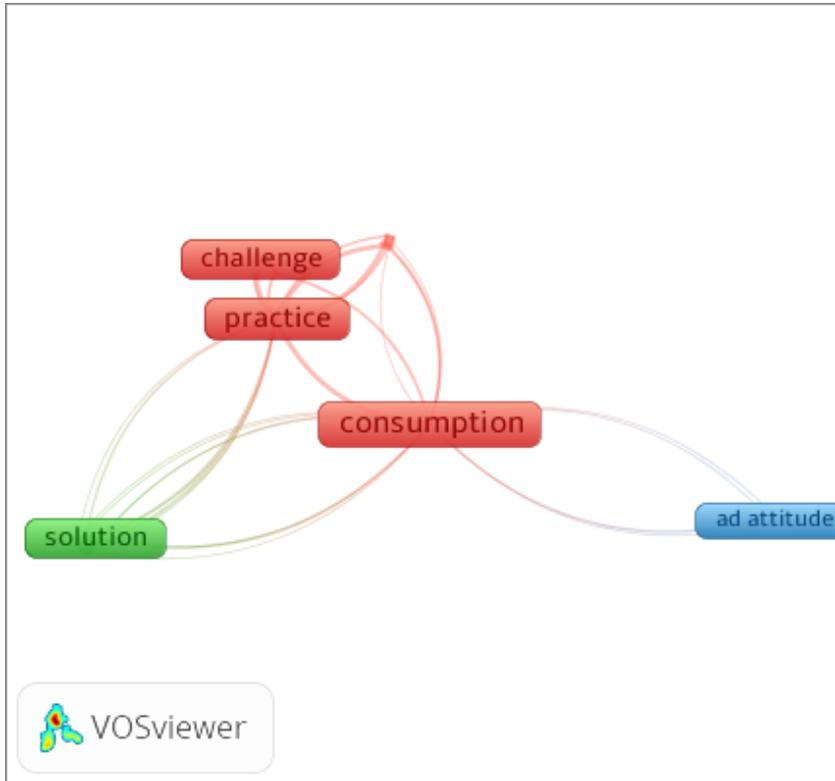


Figure 82 E2 - 2 Demarketing (Network visualization)) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

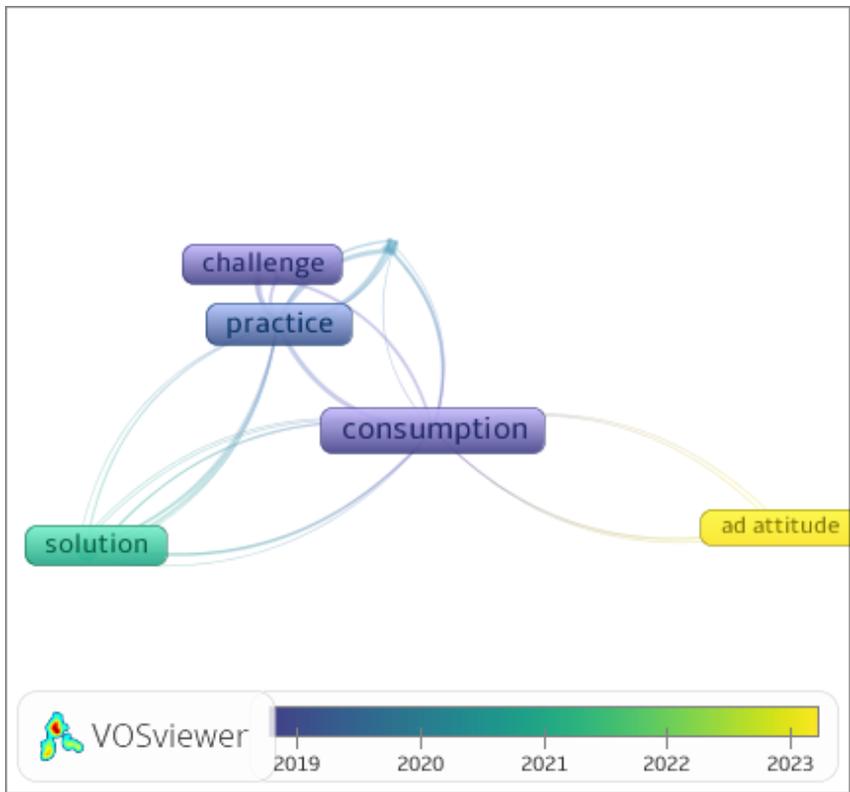


Figure 83 E2 - 2 Demarketing (Overlay visualization) – This visualization shows the newest trend among this cohort of articles as “ad attitude.”

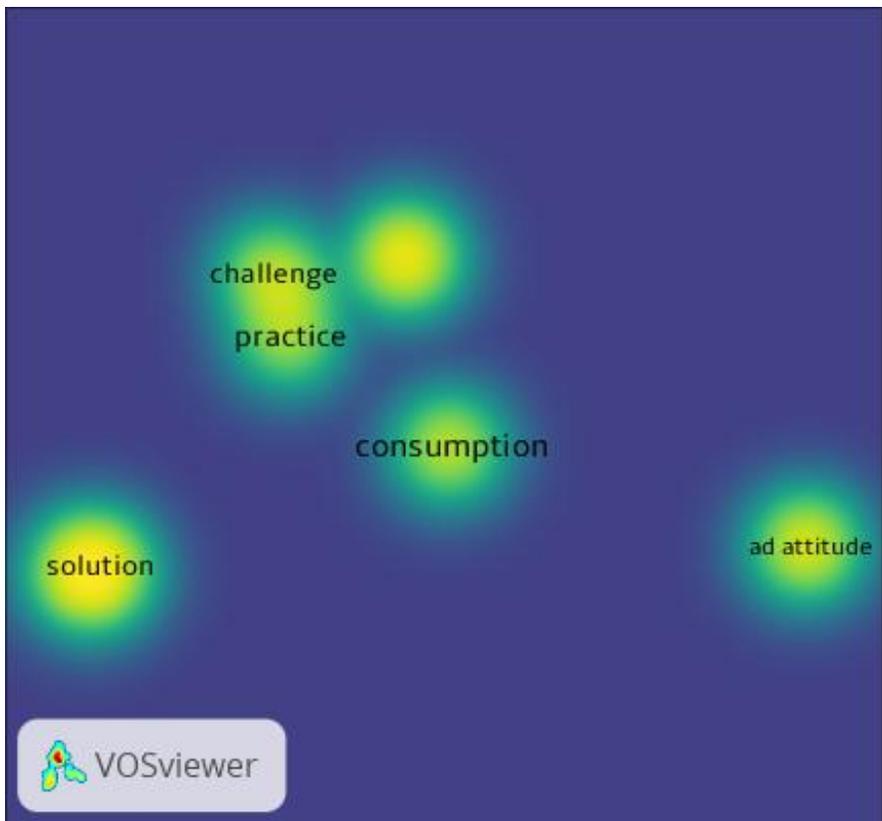


Figure 84 E2 - 2 Demarketing (Density visualization) – This visualization shows that consumption, challenge and practice, solution, and ad attitude have equivalent significance in this group.

Cluster 1 seems to focus on the concept of anticonsumption and its various facets. The keywords suggest that the articles in this cluster explore the idea of ant consumerism, where individuals reject or resist the dominant consumer culture and values. 'Embeddedness' might indicate the extent to which these behaviors and attitudes are ingrained or embedded in individuals' daily lives. 'Insight' and 'challenge' suggest an examination of the insights gained and challenges faced in understanding and promoting anticonsumption behaviors.

Cluster 2 appears to concentrate on the behavioral aspects of sustainable consumption, particularly in the context of fast fashion. The keywords suggest that the articles explore how cultural theory can help understand the relation between consumers and fast fashion. 'Value action gap' is a phenomenon that occurs when consumers' values and attitudes do not match their actual behavior. The term 'solution' implies that the articles propose some strategies to reduce this gap and promote more sustainable consumption.

Cluster 3 focuses on the attitudinal aspects of sustainable consumption in the context of online media. The keywords suggest that the articles investigate how consumers' attitudes towards online advertisements (ad attitude) affect their consumption behavior and decisions. downstream effects could refer to the impact that online advertisements have on consumers' subsequent actions and outcomes, such as

purchasing, sharing, or donating. 'Home page content' and 'news browsing context' might refer to the factors that influence the exposure and attention of consumers to online advertisements.

These articles discuss ways to slow down and/or "demarket" certain products/services. Even though one could hypothesize that demarketing may help reduce the negative impacts of consumption on the environment, in this paper, we want to use marketing to promote pro-environmental behaviors among consumers. Therefore, only articles that used to promote pro-environmental behaviors can provide such insights. As a result, these articles do not answer the research question and thus are not included.

9.1.3 FOR OTHER STAKEHOLDERS (E2 – 3 OTHER STAKEHOLDERS)

The cluster analysis result for this group is as follow (MO = 10; N = 2862; AN = 63; NA = 38/60%; R = 1.0; X = "author", "part", "person", "order", "year")

- Cluster 1: business, cleaner production, climate change, country, development, economy, environment, framework, gap, implementation, need, practice, process, production, relationship, retailer, service, stakeholder, sustainability, sustainable business practice, sustainable consumption, sustainable development.
- Cluster 2: behavior, china, consumer, csr, effect, firm, value.
- Cluster 3: attitude, behaviour, household, theory.

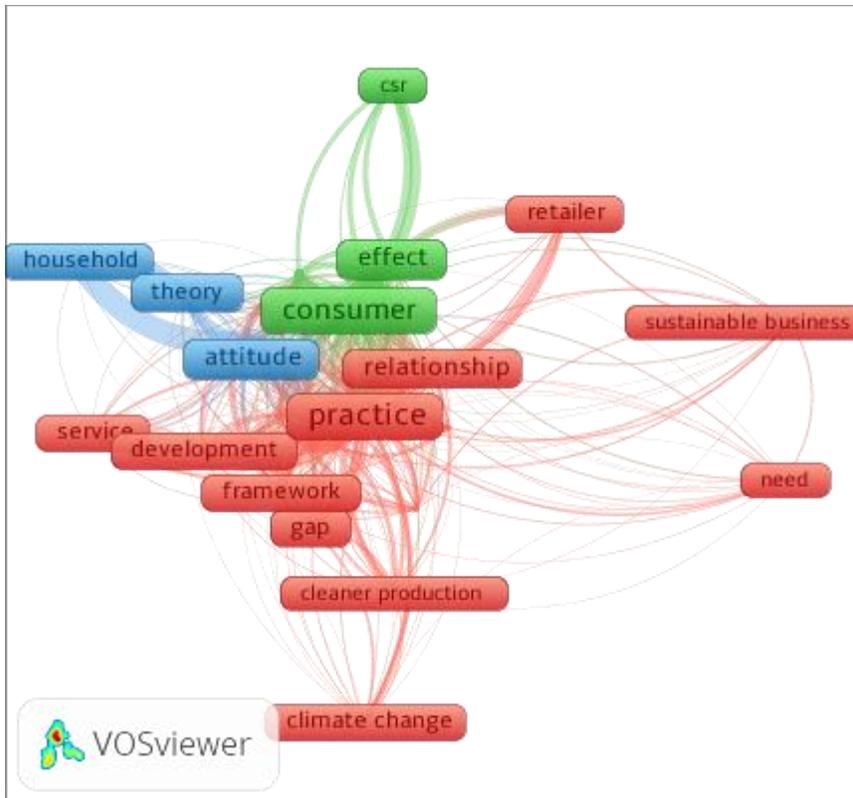


Figure 85 E2 - 3 Other stakeholders (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

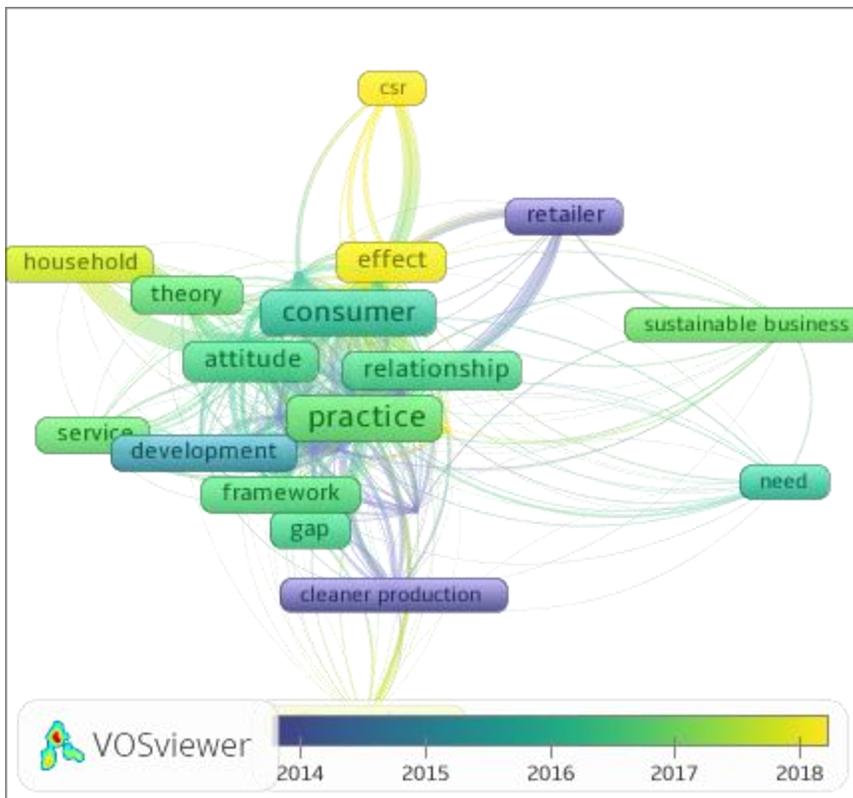


Figure 86 E2 - 3 Other stakeholders (Overlay visualization) - According to this visualization, the current research direction in this group is CSR and its effects.

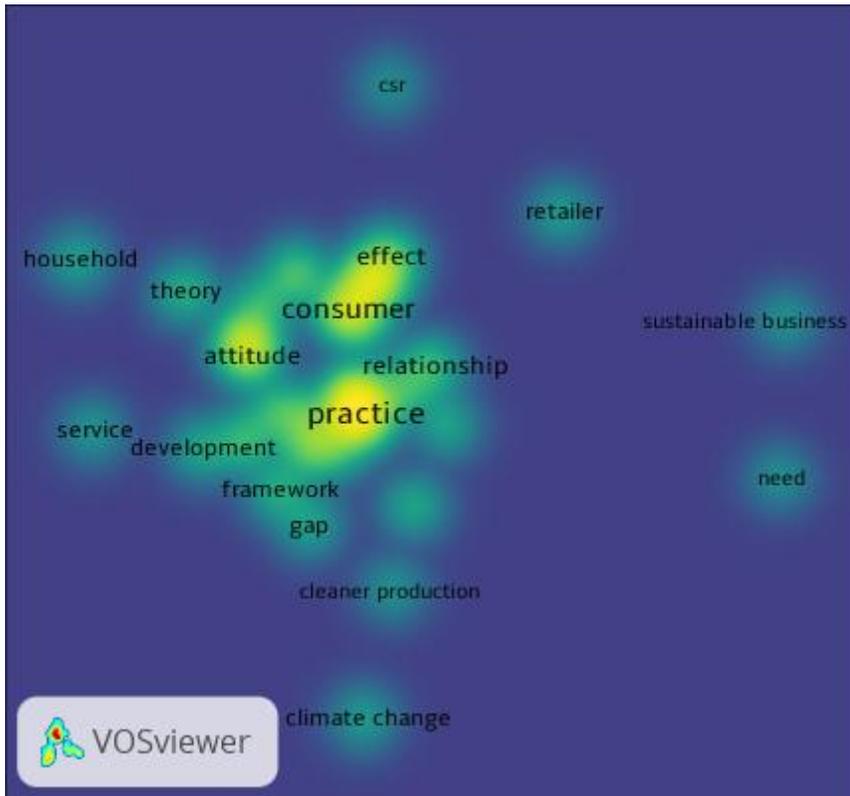


Figure 87 E2 - 3 Other stakeholders (Density visualization) – The visualization shows that the key research topics in this group are actual practices and consumer attitude.

Cluster 1 covers a wide range of issues related to sustainability, such as cleaner production, climate change, sustainable development, and stakeholder engagement. It suggests that the articles in this group are interested in exploring the challenges and opportunities of implementing sustainable business practices in different countries and sectors, and how they can contribute to the global goals of environmental and social well-being. Some of the keywords, such as gap, need, and framework, indicate that the articles may also propose some solutions or recommendations for improving the current situation and bridging the gap between theory and practice.

Cluster 2 focuses on the behavior and value of consumers and firms in China, and how they are influenced by corporate social responsibility (CSR) initiatives. It implies that the articles are examining the effectiveness and impact of CSR on the Chinese market, and how it can shape the preferences and actions of both the demand and supply sides. Some of the keywords, such as effect, value, and consumer, suggest that the articles may also use some quantitative or experimental methods to measure and analyze the data.

Cluster 3 concentrates on the attitude and behavior of households, and how they are explained by different theories. It indicates that the articles are investigating the psychological and social factors that affect the decision-making and consumption patterns of individuals and families, and how they can be influenced by various interventions or policies. Some of the keywords, such as attitude, theory, and household, imply that the articles may also use some qualitative or conceptual frameworks to understand and interpret the phenomena.

Overall, these articles discuss interventions that other stakeholders of a business – governments, policymakers, fellow businesses, suppliers, family members, friends, social circles, associations, etc. can implement to promote pro-environmental behaviors. Insights and consequential proposed action items in these articles are beyond the scope of interventions by marketers (e.g., business policies change, government subsidies, B2B collaborations, firms' collaborations with governments, etc.). Often, these proposals are aimed at and executable by entities such as governmental bodies, non-profit

organizations, community groups, etc. rather than businesses' marketers seeking to change their consumers' behaviors. In other words, these articles bring insight into which they are not applicable for marketing practitioners looking to promote pro-environmental behaviors among consumers. Therefore, these articles are not included.

9.1.4 PURCHASE OF GREEN (E2 – 4 PURCHASE OF GREEN)

The cluster analysis result for this group is as follow (MO = 10; N = 4603; AN = 87; NA = 38/60%; R = 1.0; X = "author", "article", "case", "originality value", "paper", "person", "previous study", "type")

- Cluster 1: action, adoption, age, antecedent, apparel, attention, attitude, attribute, awareness, barrier, behavioral control, behaviour, business, characteristic, china, choice, concern, conscious consumer, consumer attitude, consumer perception, corporate social responsibility, csr, customer, design methodology approach, determinant, driver, ecofriendly product, ecolabel, effectiveness, environment, environmental concern, environmental consciousness, environmental sustainability, ethical fashion, firm, green consumption, green product, green purchase intention, group, hotel, individual, information, italian consumer, italy, materialism, moderating effect, motivation, organic food, outcome, perception, personal norm, planned behavior, practical implication, preference, producer, program, purchase, purchase intention, quality, reason, response, segment,

sem, service, slow fashion, structural equation modeling, subjective norm, sustainable apparel, sustainable consumption, sustainable development, sustainable product, term, theory, tpb, value.

- Cluster 2: respect, woman.
- Cluster 3: consumer preference.

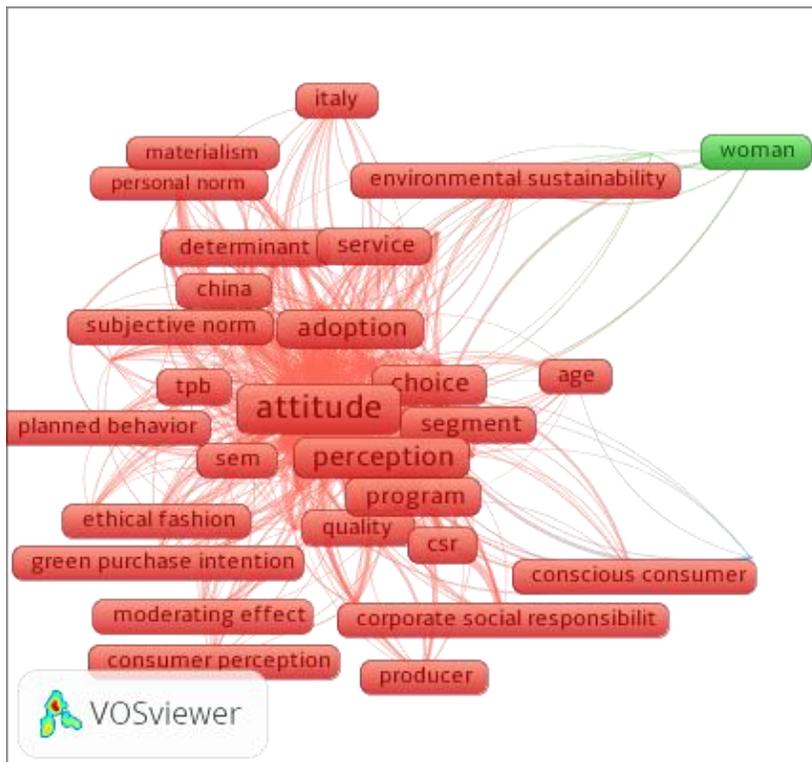


Figure 88 E2 - 4 Purchase of green (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

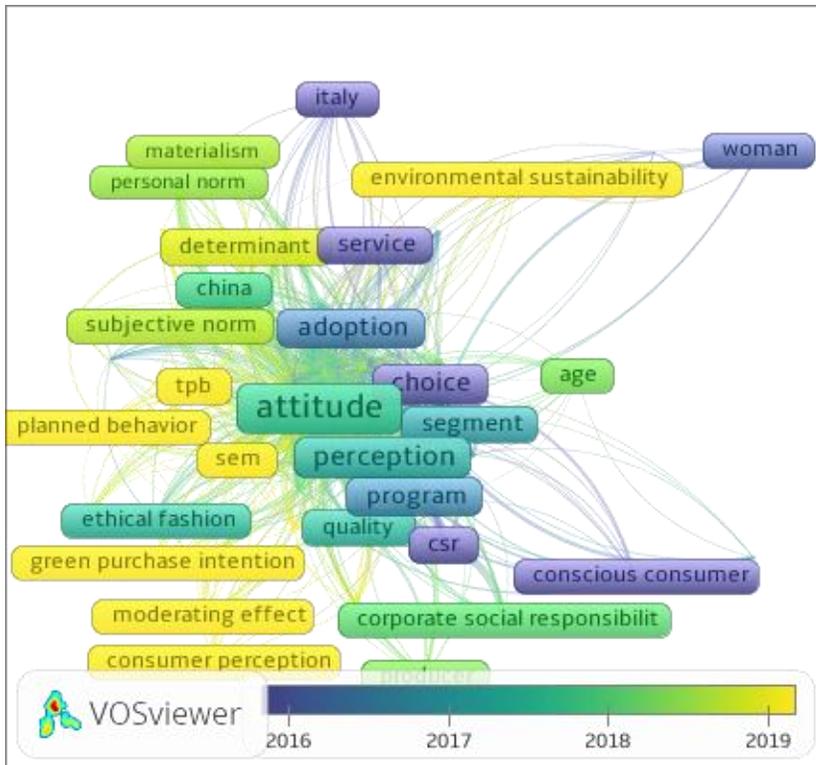


Figure 89 E2 - 4 Purchase of green (Overlay visualization) - According to this visualization, the current research direction in this field seems to be the Theory of Planned Behavior, using Structural Equation Modelling Method to investigate issues like environmental sustainability and green purchase intention, with an attention to the moderating effect of consumer perception.

fashion, which reflect the trends and innovations in the sustainable consumption market. The cluster also shows that the articles use various theories and methods to analyze the data, such as planned behavior, structural equation modeling, and design methodology approach.

Cluster 2 is exceedingly small and only contains two words: respect and woman. It implies that the articles are focused on the gender dimension of sustainability, and how they relate to the values and norms of distinct cultures and societies. It may also suggest that the articles are examining the role and influence of women in the sustainability movement, and how they can be empowered and respected as consumers, producers, and leaders. The cluster may also indicate that the articles are using some feminist or intersectional perspectives to understand and critique the sustainability discourse and practice.

Cluster 3 is also small and only contains one word: consumer preference. It indicates that the articles are concerned with the psychological and emotional aspects of sustainability, and how they affect the choices and decisions of consumers. It may also imply that the articles are investigating the factors and drivers that shape the consumer preference for sustainable products and services, and how they can be influenced or changed by various interventions or policies. The cluster may also suggest that the articles are using some qualitative or exploratory methods to elicit and understand the consumer preference, such as interviews, surveys, or focus groups.

Overall, these articles examine consumers' purchasing and/or renting motivations, intentions, or behaviors of specific products or services (e.g., clothing, vehicles, apparel, accommodation, etc.) labeled as sustainable, green, eco-friendly, fair-trade, zero-waste, etc. Even though some articles are concerned with the potential impact of such purchases on the environment, most discuss ways to drive sales of the mentioned products/services. Additionally, many articles in this group seem to automatically associate behaving pro-environmentally with financially engaging with the said products or services. Usually, these products are considered a liability by consumers, as they are more expensive yet evaluated as lower in quality than so-called unsustainable alternatives (Luchs et al., 2010). Some of the articles call the price increase for such products and services "premiums." In other instances, as previously mentioned, the term "greenwashing" originated from hotels asking tourists to not have their towels renewed, supposedly for the sake of the environment, but profiting them financially (Orange, 2010; Philip, 2014). Whether this is the case – that consumers should spend and spend more on products and services that are labeled as green, eco-friendly, environmental, organic, sustainable, pro-environmental, fair-trade, etc. to be considered pro-environmental, or possibly contribute to the profit margin of hotels via personal sacrifices of comfort and value for money, is questionable. Irrespective of the response, our aim is to ensure that our paper is not utilized to endorse the sale of specific products nor potentially disguise for-profit entities' financial gains as pro-environmental behaviors, to avoid the grey area of greenwashing,

and to remain free from any conflict of interest. Only studies aiming to promote pro-environmental behaviors that can be done free of charge (e.g., waste separation, water conservation, lowering temperature for washing clothes, reduced use of non-renewable materials, household food waste reduction, returning used electronics/batteries to central processing centers, recycling, water/electricity/energy conservation, etc.) by consumers and do not benefit any organization economically are thence included.

9.1.5 NO INTERVENTION (E2 – 5 NO INTERVENTION)

The cluster analysis result for this group is as follow (MO = 21; N = 7842; AN = 106; NA = 64/60%; R = 7.0; X = “author”, “article”, “order”, “originality value”, “participant”, “person”, “practical implication”, “type”)

- Cluster 1: action, adoption, antecedent, attitude, barrier, behavior, business, challenge, change, China, concern, CSR, customer, design methodology approach, determinant, economy, environmental concern, environmental impact, firm, food, food waste, household, individual, industry, information, intention, issue, marketing, motivation, opportunity, perception, practice, preference, price, process, product, production, purchase intention, reason, retailer, service, society, sustainability, sustainable development, sustainable product, theory, use, value, waste, willingness.
- Cluster 2: subjective norm, tpb.

- Cluster 3: corporate social responsibility.
- Cluster 4: government.
- Cluster 5: green practice.

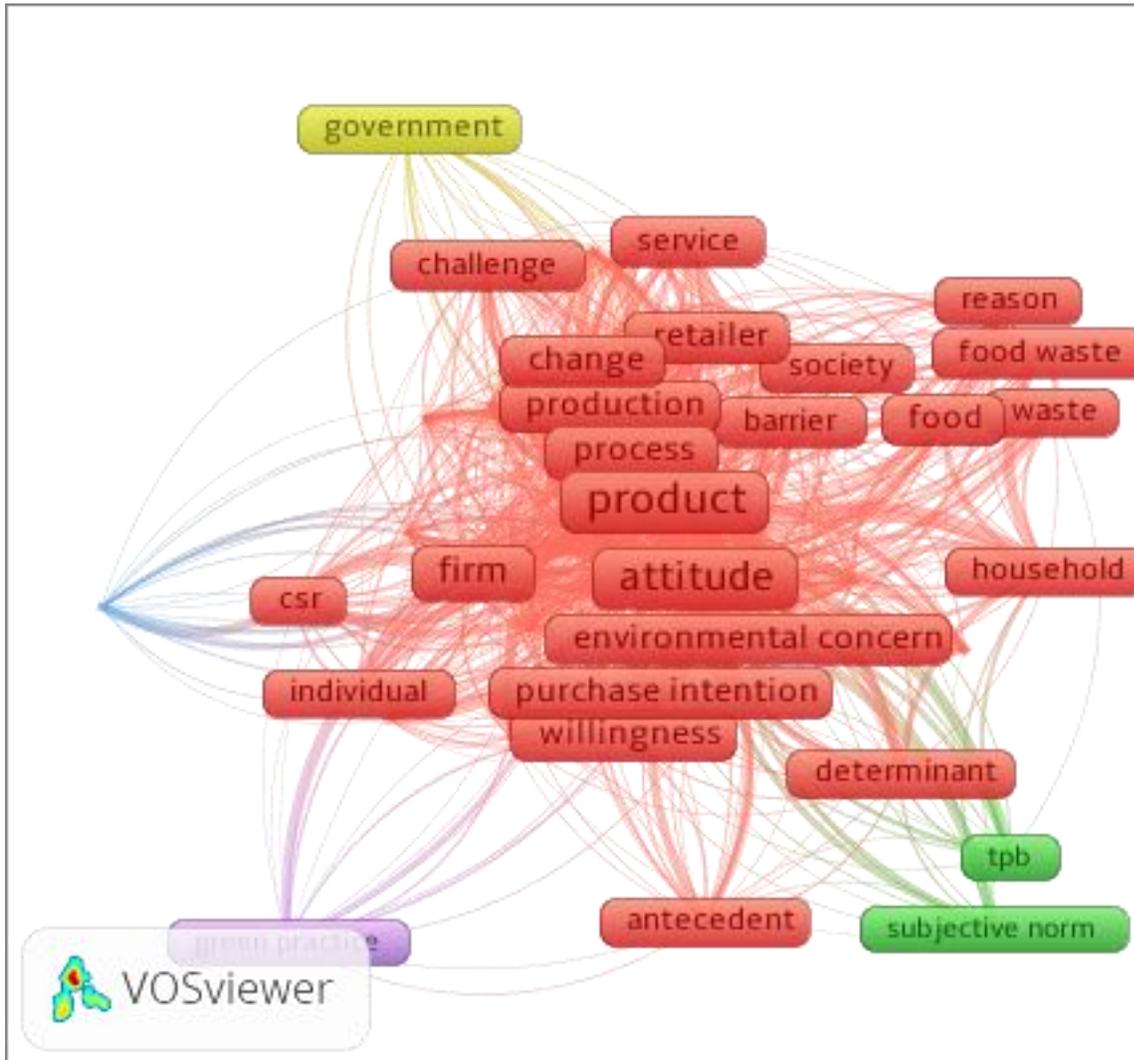


Figure 91 E2 - 5 No intervention (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

Cluster 1 covers a wide range of issues related to sustainability, such as environmental concerns, food waste, sustainable development, and green products. It suggests that the articles are interested in exploring the challenges and opportunities of implementing sustainable practices in different countries and sectors, and how they can contribute to the global goals of environmental and social well-being. Some of the keywords, such as challenge, change, opportunity, and issue, indicate that the articles may also propose some solutions or recommendations for improving the current situation and bridging the gap between theory and practice. The cluster also includes some specific topics, such as China, food, retailer, and price, which reflect the context and scope of the sustainability research. The cluster also shows that the articles use various theories and methods to analyze the data, such as design methodology approach, perception, intention, and willingness.

Cluster 2 is small and only contains two words: subjective norm and tpb. It implies that the articles are focused on the social dimension of sustainability, and how they relate to the attitudes and behaviors of individuals and groups. It may also suggest that the articles are using the theory of planned behavior (TPB) as a conceptual framework to understand and predict the sustainability-related actions and decisions of individuals. TPB is a widely used theory in social psychology that proposes that human behavior is influenced by three factors: attitude, subjective norm, and perceived behavioral control.

The subjective norm refers to the perceived social pressure or expectation from others to perform or not perform a certain behavior.

Cluster 3 only contains one word: corporate social responsibility. It indicates that the articles are concerned with the ethical and moral aspects of sustainability, and how they affect the policies and practices of businesses and organizations. It may also imply that the articles are investigating the effectiveness and impact of corporate social responsibility (CSR) initiatives on the environmental and social performance of firms, as well as on stakeholder satisfaction and loyalty. CSR is a concept that refers to the voluntary actions taken by businesses to address the environmental and social impacts of their activities, beyond the legal requirements and expectations.

Cluster 4 similarly contains one word: government. It indicates that the articles are interested in the political and institutional aspects of sustainability, and how they affect the regulation and governance of various sectors and actors. It may also imply that the articles are examining the role and influence of government in promoting and facilitating the sustainability agenda, and how it can collaborate with other stakeholders, such as businesses, civil society, and international organizations. Government is a key factor in the sustainability field, as it can set the rules, standards, incentives, and sanctions for the environmental and social behavior of other actors.

Cluster 5 also contains one word: green practice. It indicates that the articles are focused on the practical and operational aspects of sustainability, and how they affect the

processes and outcomes of various activities and functions. It may also suggest that the articles evaluate the benefits and costs of adopting and implementing green practices in different domains, such as production, service, marketing, and consumption. Green practices are actions or methods that aim to reduce the environmental impact and enhance the social value of products or services, such as using renewable energy, recycling materials, or supporting local communities.

Of the archival research type, these articles retrospectively discuss various concepts, theories, and practices relating to different sustainability aspects. They study past literature or data on various sustainability dimensions. These articles may draw conceptualizations among found constructs and may or may not include a hypothesis testing of the proposed conceptualizations. Nevertheless, these theories or concepts do not advance towards a marketing intervention, to test resulting behavioral outcomes (i.e., pro-environmental behavior changes) on consumers. It is worth noting that these articles may be empirical in the sense of validating a certain conceptualization. However, they do not include an intervention to promote specific pro-environmental behavioral changes among consumers. Some articles analyze unrecognized effects of marketing campaigns originally planned for other causes at the time of their studies, but they did not initially plan to change consumer behavior. Additionally, they may have done an intervention, but the experiment does not aim to verify marketing interventions that can promote pro-environmental behaviors among consumers. Therefore, they do not provide evidence of

marketing interventions by for-profit businesses that can further pro-environmental behaviors among consumers and are thus not included.

9.1.6 NON-MARKETING (E2 – 6 NON-MARKETING)

The cluster analysis result for this group is as follow (MO = 10; N = 3640; AN = 90; NA = 54/60%; R = 2.0; X =, “article”, “year”, “type”)

- Cluster 1: action, approach, attitude, behavior, business model, china, circular economy, cleaner production, climate change, concept, consumer, consumption, consumption pattern, contribution, corporate social responsibility, country, csr, development, economy, effect, environmental awareness, environmental impact, environmental sustainability, firm, government, green practice, industry, manager, manufacturer, need, performance, process, product, production, program, relationship, sample, service, slow fashion, smes, social influence, survey, sustainable business model, sustainable consumption, sustainable development, transition, use, user, waste.
- Cluster 2: ecofriendly product.
- Cluster 3: collaborative consumption.

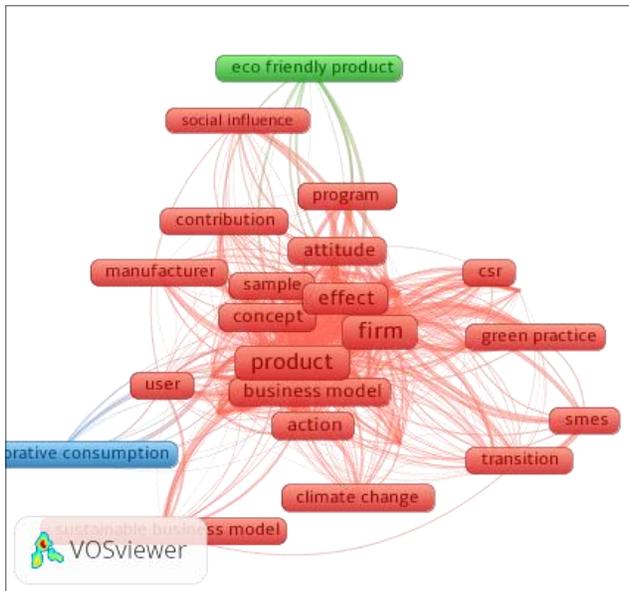


Figure 94 E2 - 6 Non-Marketing (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

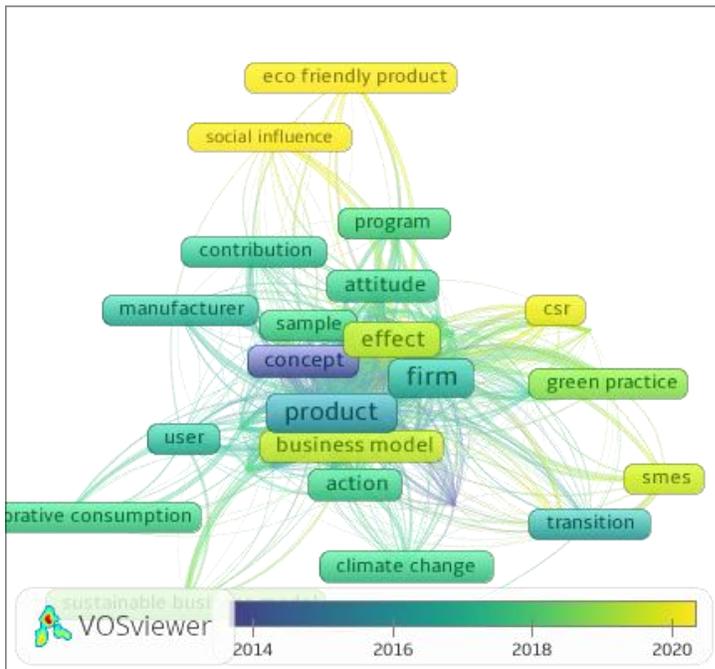


Figure 95 E2 - 6 Non-Marketing (Overlay visualization) - According to this visualization, the current research direction in this field is on products labeled as eco-friendly, corporate social responsibility and its social influence.

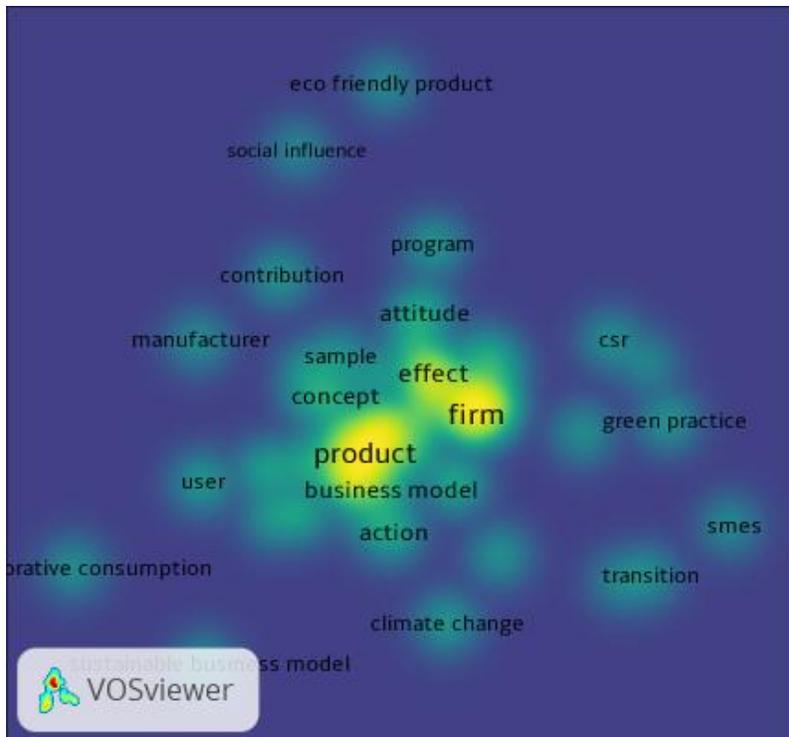


Figure 96 E2 - 6 Non-Marketing (Density visualization) – The visualization shows that the key research topics in this group are products, firms, and their business models.

Cluster 1 covers a wide range of issues related to sustainability, such as circular economy, cleaner production, climate change, corporate social responsibility, environmental impact, green practice, sustainable development, and waste management. It suggests that the articles are interested in exploring the challenges and opportunities of implementing sustainable practices in different countries and sectors, and how they can contribute to the global goals of environmental and social well-being. Some of the keywords, such as challenge, transition, contribution, and effect, indicate that the articles may also propose some solutions or recommendations for improving the current situation and bridging the gap between theory and practice. The cluster also includes some specific topics, such as china, slow fashion, and smes, which reflect the context and

scope of the sustainability research. The cluster also shows that the articles use various approaches and methods to analyze the data, such as business model, design methodology approach, survey, and relationship.

Cluster 2 only contains one word: eco-friendly product. It indicates that the articles are focused on the product dimension of sustainability, and how it affects the preferences and choices of consumers and producers. It may also imply that the articles are investigating the characteristics and benefits of eco-friendly products, such as their environmental performance, quality, price, and value. Eco friendly products are products that have a reduced negative impact on the environment, such as using renewable materials, saving energy, or reducing emissions.

Cluster 3 also contains one word: collaborative consumption. It indicates that the articles are interested in the consumption dimension of sustainability, and how it affects the behaviors and patterns of consumers and users. It may also suggest that the articles examine the motivations and barriers of collaborative consumption, such as environmental awareness, social influence, and trust. Collaborative consumption is a concept that refers to sharing, renting, or exchanging of goods or services among people, rather than owning or buying them. It is seen to reduce the environmental impact and enhance the social value of consumption.

These articles fall into the theme of sustainability. However, the proposed insights are not executable by marketing activities. Promotion of sustainable behavior is not

implemented via direct marketing interventions on the market, but by other business activities (e.g., collaboration among businesses, between businesses and governments or other stakeholders, supply chain networks, business's technological innovations, business's internal standard operating procedures, business policies, research and development activities, business strategies to create green-labeled lines of product – car, manufacturing innovations, etc.). Some articles may mention marketing practices, but these mentions are from a different angle than promoting pro-environmental behavioral changes among consumers. These articles, for instance, may examine why companies use marketing to promote their green image, or explain the role of marketing to help achieve specific business goals (but not changing consumer behavior), or marketing was only used to recruit subjects for their studies. Therefore, these articles do not answer our research questions and are not included.

9.1.7 RESEARCH AGENDA (E2 – 7 RESEARCH AGENDA)

The cluster analysis result for this group is as follow (MO = 3; N = 343; AN = 31; NA = 19/60%; R = 0.6; X = "article", "order", "special volume")

- Cluster 1: avenue, b corps (benefit corporation), climate change, future research, issue, literature, part, SDGs (sustainable development goals), sustainable business model.
- Cluster 2: consumption, consumption pattern, LCA (life cycle assessment), product, social practice, user.

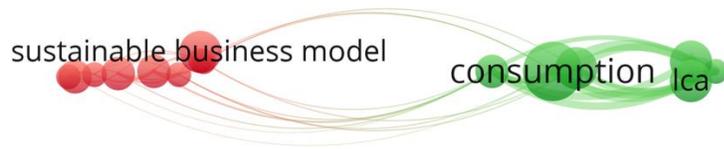


Figure 97 E2 - 7 Research agenda (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.

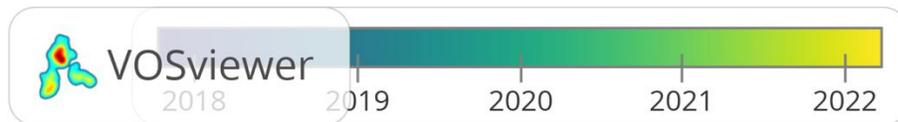


Figure 98 E2 - 7 Research agenda (Overlay visualization) - According to this visualization, the current research direction in this field is on sustainable business models.

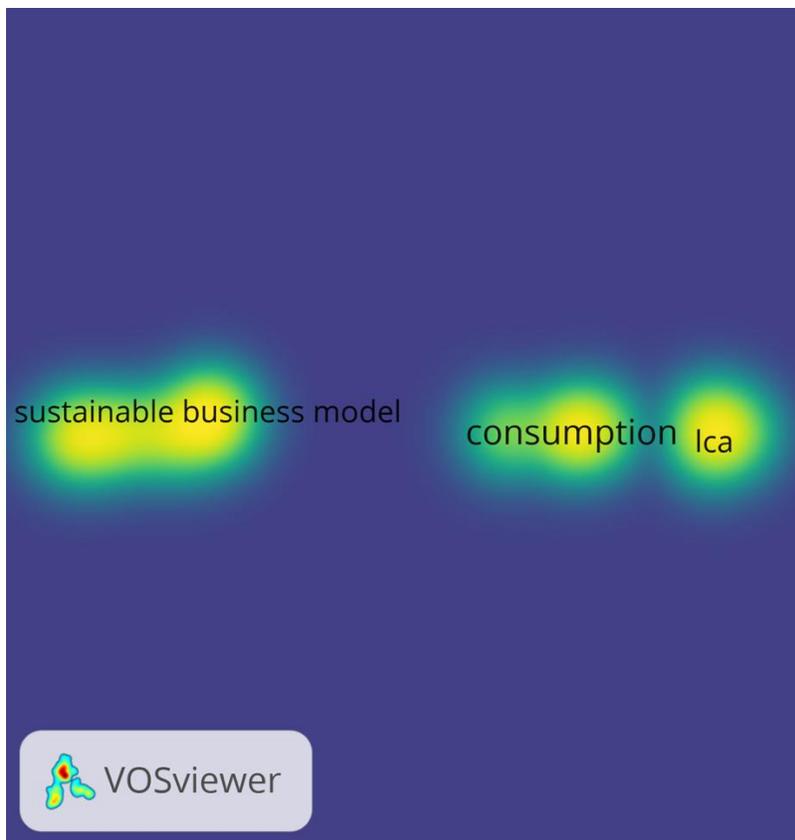


Figure 99 E2 - 7 Research agenda (Density visualization) – The visualization shows that the key research topics in this group are “sustainable business model”, “consumption”, and “lca”.

Cluster 1 covers some general and broad issues related to sustainability, such as climate change, sdgs, and sustainable business models. It suggests that the articles are interested in exploring the current and future challenges and opportunities for sustainability, and how they can be addressed by different actors and sectors. Some of the keywords, such as avenue, future research, and part, indicate that the articles may also identify some gaps and directions for further research and action. The cluster also includes some specific topics, such as b corps, which reflect the innovations and trends in the sustainability field. B corps are businesses that meet the highest standards of social and environmental performance, accountability, and transparency (Villela et al., 2021).

Cluster 2 focuses on the product and consumption dimensions of sustainability, and how they affect the behaviors and patterns of users and consumers. It implies that the articles are examining the characteristics and impacts of various products and consumption patterns, and how they can be improved or changed to reduce the environmental footprint and enhance the social value. Some of the keywords, such as lca, product, and social practice, suggest that the articles may also use some tools and methods to measure and analyze the data. Lca is a technique that assesses the environmental aspects and potential impacts of a product, process, or service throughout its life cycle (Peters et al., 2016). Social practice is a concept that refers to the routinized and shared ways of doing and understanding things in everyday life (Liedtke et al., 2021).

These articles, as described, are research agendas with general conceptualizations and analysis. Often, they are papers from special issues from major publications. They highlight areas where more research is needed on the theme of sustainability. Nevertheless, these articles themselves do not feature any empirical data stemming from actual marketing interventions on the market to promote pro-environmental behaviors among consumers. Therefore, these articles are not included.

9.1.8 OUT OF SCOPE (E2 - OUT OF SCOPE)

This group encompasses all the previous groups. This group forms all the articles that are excluded from the final sample.

The cluster analysis result for this group is as follow (MO = 23; N = 9378; AN = 123; NA = 74/60%; R = 7.0; X =, “practical implication”, “number”, “hypothesis”, “year”, “originality value”, “variable”)

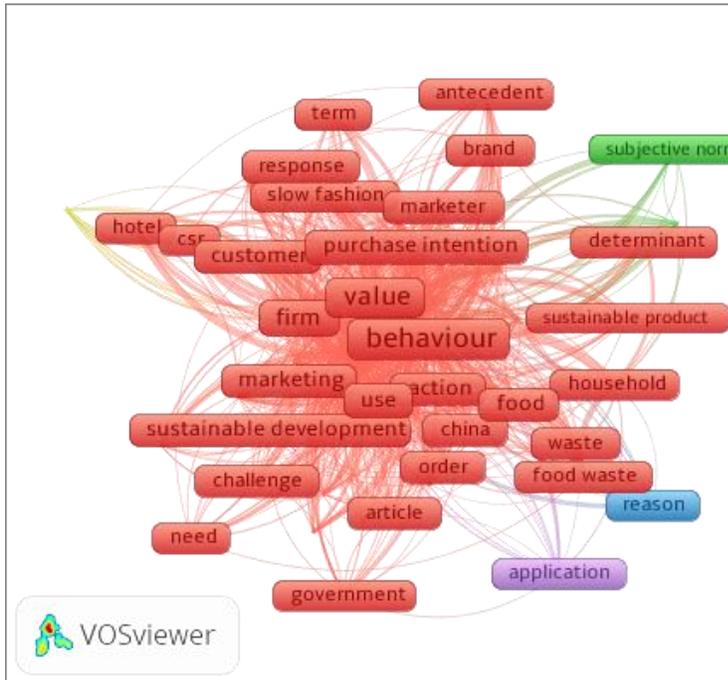
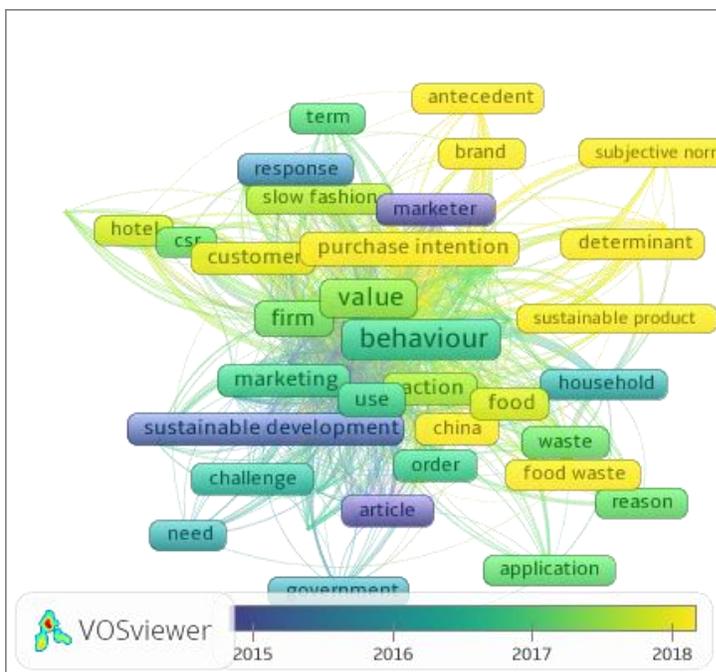


Figure 100 E2 - Out of scope (Network visualization) -This visualization shows the clusters graphically, the size of the words and connections are bigger and thicker corresponding to their frequency and relation.



articles use various theories and methods to analyze data, such as design methodology approach, communication, perception, and intention.

Cluster 2 is exceedingly small and only contains two words: subjective norm and tpb. It implies that the articles are focused on the social dimension of sustainability, and how they relate to the attitudes and behaviors of individuals and groups. It may also suggest that the articles are using the theory of planned behavior (TPB) as a conceptual framework to understand and predict the sustainability-related actions and decisions of people. TPB is a widely used theory in social psychology that proposes that human behavior is influenced by three factors: attitude, subjective norm, and perceived behavioral control. The subjective norm refers to the perceived social pressure or expectation from others to perform or not perform a certain behavior.

Cluster 3 only contains one word: corporate social responsibility. It indicates that the articles are concerned with the ethical and moral aspects of sustainability, and how they affect the policies and practices of businesses and organizations. It may also imply that the articles are investigating the effectiveness and impact of corporate social responsibility (CSR) initiatives on the environmental and social performance of firms, as well as on stakeholder satisfaction and loyalty. CSR is a concept that refers to the voluntary actions taken by businesses to address the environmental and social impacts of their activities, beyond the legal requirements and expectations.

Cluster 4 equally contains one word: reason. It indicates that the articles are interested in the psychological and cognitive aspects of sustainability, and how they affect the motivations and barriers of people to adopt or reject sustainable practices. It may also imply that the articles examine the factors and drivers that shape the reason for people to engage or disengage in sustainability-related behavior, and how they can be influenced or changed by various interventions or policies. Reason is a concept that refers to the mental process of making sense of the world and making decisions based on logic, evidence, and values.

Cluster 5 is also a one-word entity with the word: application. It indicates that the articles are focused on the practical and operational aspects of sustainability, and how they affect the processes and outcomes of various activities and functions. It may also suggest that the articles evaluate the benefits and costs of applying sustainable practices in different domains, such as production, service, marketing, and consumption. Application is a concept that refers to the act of putting something into use or practice, or the result of doing so.

The articles in this group do not answer our research question because they do not focus on the marketing actions that businesses can do to change consumers' behaviors to be sustainable or pro-environmental. Instead, they mostly explore the general and broad issues related to sustainability, such as the challenges and opportunities, the social and ethical aspects, the psychological and cognitive aspects, and the practical and operational

aspects. They use various theories and methods to analyze the data, but they do not translate these insights into the specific marketing interventions to change consumer behavior.

In the end, only documents with a marketing intervention from businesses to change consumers' behaviors that do not benefit businesses financially are retained. All articles that are kept after this stage, which equal to 11, explicitly and directly answer our research question based on an actual marketing intervention on the market that can promote pro-environmental behaviors consumers' behavior, without any indirect implications and without any financial gains for any entity.

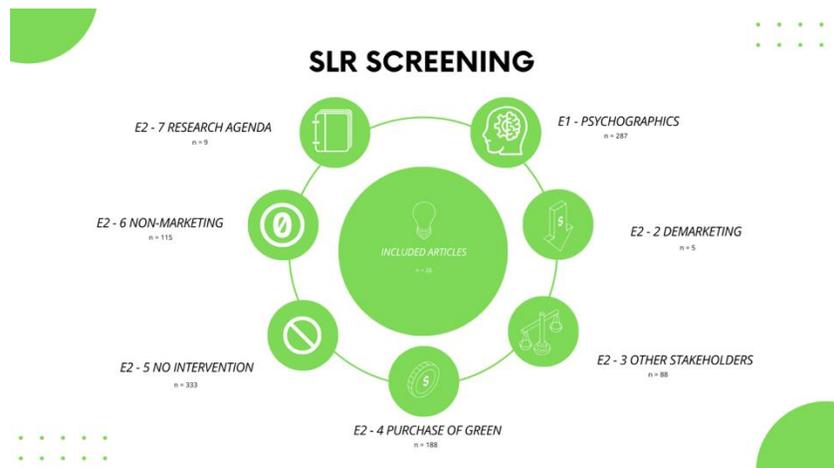


Figure 103 Summary of screening process of this SLR, which shows the core of the knowledge and the peripheral topics pertaining to the theme of sustainability.

9.2 MARKETING ACTIONS FOR PRO-ENVIRONMENTAL BEHAVIOR CHANGE AMONG CONSUMERS FROM INCLUDED ARTICLES

Table 37 Marketing actions drawn from included literature.

| Marketing Action | Description | Example |
|---|--|---|
| Addressing sociocultural and institutional influences | Recognizing that a person's success in simplifying isn't just shaped by personal values and beliefs but also by broader sociocultural and institutional influences | A company could run a marketing campaign that not only promotes the benefits of a simpler lifestyle, but also addresses the societal pressures that |

| Marketing Action | Description | Example |
|---|--|--|
| | | often hinder people from adopting such a lifestyle |
| Appeal type | The way of communicating the relevance and implications of smartphone returns to consumers, either emphasizing self-interest or pro-environmental benefits. | Self-interest appeal: "Returning your old smartphone will help you to declutter your home and make some extra money." Pro-environmental appeal: "Returning your old smartphone will contribute to efficient resource use and avoid e-waste." |
| Applying the behavioral learning hierarchy of "do-learn-feel" | A sequence of cognitive and affective processes that lead to behavioral change | In the game "Reduce Your Juice," players first interact with the game mechanics ("do"), then acquire sustainability knowledge ("learn"), and finally develop value-in-behavior ("feel") |
| Autonomy | The sense of having the ability to act and choose freely | "You have the choice to grasscycle or not" |
| Challenge | Offering users with tasks or goals that are appropriate for their abilities and interests, and that challenge them to learn and improve | The gamified app adjusts the difficulty and complexity of the mini games according to the users' skill level and preferences |
| Character or avatar | Allowing users to choose or create a character that represents them in the app, and that reflects their personality and aspirations | The gamified app allows users to pick an avatar from the Watt Family, which consists of different household members |
| Choice Architecture | Designs the physical or digital environment in which consumers make decisions. | Encourages consumers to place perishable food products at eye level to remind them of consumption. |
| Co-creation | Involving the consumers in the design and delivery of sustainable solutions and campaigns | Workshops, online platforms, or competitions co-creation |
| Collaborations with Influencers | Collaborate with influencers who resonate with their target audience's identity. | A brand selling sustainable products partnering with an influencer known for their environmental activism. |
| Community-based Marketing | Foster a sense of community among their customers by hosting events or creating online platforms where customers can share their experiences and ideas about sustainability. | A brand hosting a community cleanup event or creating an online forum for customers to share their recycling tips. |
| Conspicuous anti-consumption signals | Visible signals that communicate environmental motives for refraining from consumption and confer status on the consumer | Patagonia providing a Worn Wear patch to affix to a repaired jacket |
| Construal level theory | Explaining how consumers use high- or low-level construal to interpret objects and events depending on their psychological distance and emotional state | Using gratitude for having to activate low construal level and match with loss frames, which focus on concrete and proximal outcomes |
| Consumer messages | Communicating the benefits of lower temperature washing through various channels and media | A.I.S.E.'s 'I Prefer 30' campaign |
| Context of return | The situation in which the return option is offered to consumers, either separately or linked to a replacement purchase. | Separate return: "You can return your old smartphone anytime, regardless of whether you buy a new one or not." Replacement purchase: "You can return your old smartphone when you buy a new one from us and get a discount on your purchase." |
| Convenience and availability | Making reusable products easy and accessible to use and reducing the hassle and effort associated with them. | Dunkin' Donuts provides reusable cups in varied sizes and colors and has a system to clean and store them for customers. |

| Marketing Action | Description | Example |
|--|---|--|
| Costly signaling theory | The idea that prosocial and green behaviors that help "the greater good" can convey status by demonstrating personal sacrifice or altruism | Driving a Prius or a Tesla to signal environmental consciousness and social responsibility |
| Creating social norms and expectations | Using testimonials, endorsements, ratings, or feedback to influence consumers' perceptions and attitudes toward water conservation and the use of alternative water sources | Reviews, ratings, testimonials, endorsements |
| Creativity priming | A technique that activates a creative mindset in consumers by asking them to recall their past creative experiences | A product package that includes a prompt such as "Think of a time when you were creative" |
| CSR | Communicating the environmental efforts of the restaurant, such as using biodegradable packaging or donating surplus food | The restaurant displays a sign that says: "We use eco-friendly doggy bags and donate our excess food to local charities." |
| Customer engagement | Developing interactive, cocreative customer experiences with gamified apps that influence cognitive, emotional, and behavioral outcomes related to sustainability behaviors | Users becoming focused, enjoying, and spending time and effort on playing the gamified app, and developing positive attitudes and loyalty towards the app and the sustainable behaviors |
| Designing serious games | Digital games designed for purposes beyond entertainment, such as sustainability | A game like "Reduce Your Juice" that encourages household energy conservation |
| Designing SMI services with innovation diffusion characteristics | Using the five innovation diffusion characteristics of SMI services to influence consumers' perceived value and satisfaction, which in turn affect their participation in SCB | Coupang, a South Korean online retailer, uses recyclable express packaging for cold chain food delivery and guides consumers to participate in EPR by providing them with comparative advantage, compatibility, trialability, and observability of their SMI service |
| Digital nudges | Interface design elements that guide consumers' behavior and encourage them to use the gamified app and adopt sustainable consumption habits | A gamified app that sends reminders to consumers to perform energy-saving behaviors, warns them of the consequences of wasting energy, provides visual aids to illustrate the impact of their actions, and gives feedback on their progress and performance |
| Eco-labeling | Use clear and consistent labels on compostable cups to help consumers identify and differentiate them from non-compostable cups. | The Australian Standard for Compostable Packaging (AS 4736) that provides a certification scheme and a logo for compostable products. |
| Educating and informing consumers | Using advertising, social media, websites, or labels to communicate the benefits and impacts of water conservation and the availability of water-saving options | Ads, videos, blogs, brochures, stickers |
| Emotional appeals | A strategy to influence consumer behavior by stimulating positive or negative emotions | TV spot that encourages parents to spend more time with their children |
| Emotional appeals | Using positive or negative emotions to influence consumers' attitudes and behaviors | Using gratitude to make consumers appreciate their food and avoid wasting it |
| End-use ideation | A task that encourages consumers to imagine alternative uses for products that they would normally discard or recycle | A product package that includes a list of possible end-use ideas for the product or its components |
| Environmental messaging | Use powerful and shocking visual messages to inform consumers of the environmental impact of disposable coffee cups and the benefits of reusable or compostable cups. | The War on Waste TV series that showed Australians throwing away enough disposable coffee cups every half an hour to fill an entire Melbourne tram. |

| Marketing Action | Description | Example |
|---|--|--|
| Establishing partnerships with consumers for SCB | Guiding and encouraging consumers to participate in the reverse recycling process of SMI services and rewarding them with incentives or recognition | Loop, a global circular shopping platform, partners with consumers and brands to offer reusable packaging for everyday products, and incentivizes consumers to return the empty containers for cleaning and refilling |
| Feedback | Giving customers feedback on their progress and performance in relation to their PEB goals, and comparing them with others or with a norm | Energy consumption reports and rankings |
| Feedback and rewards | Providing users with information and incentives that show their progress and performance, and that acknowledge their efforts and achievements | The gamified app provides users with points, badges, and tips as feedback and rewards |
| Financial incentives | Offering customers monetary rewards or discounts for engaging in PEBs, or imposing penalties or fees for not doing so | Discounts or fees for reusable or disposable cups |
| Flow | Creating psychological states of energized focus, intense involvement, and enjoyment that motivate consumers to continue engaging with gamified apps and perform sustainable behaviors | Power Raid game, which challenges users to turn off electricity switches before they reach the red line, and rewards them with points, badges, and trophies |
| Framing | Presenting the information and benefits of sustainable behaviors in a way that appeals to the consumers' motivations, emotions, and values | Health, cost savings, social norms, or moral obligations frames |
| Framing | Presents information or options in a way that emphasizes the positive or negative aspects of a decision. | Water conservation campaigns often frame the act of turning off the tap while brushing teeth as a significant contribution to saving water resources. |
| Friendly service | Presenting doggy bags with a smile and a positive attitude | The server says: "Here is your doggy bag. Enjoy your leftovers at home!" |
| Gamification | The use of game design elements in non-game contexts to create motivational experiences | A gamified app that teaches consumers how to save energy and reduce their electricity bills |
| Gamification | Using game design elements in non-game contexts to enhance consumer experiences and value creation for sustainability behaviors | Reduce Your Juice app, which contains mini games that target different sustainable energy behaviors |
| Gamified app design | Using game design elements to create an engaging and educational app that promotes sustainable consumption behaviors | The gamified app used in this study, which includes three mini games related to household energy saving behaviors |
| Goal setting | Asking customers to set clear and specific goals for their PEBs and providing them with plans and tools to achieve them | IKEA's Live Lagom project |
| Identity-based Product Lines | Create product lines that cater to specific identity groups. | A clothing brand launching a line of eco-friendly apparel specifically targeted at outdoor enthusiasts. |
| Increase the fluency or ease of comprehension of the pro-environmental messages | Make the message clear, compelling, and credible, and consistent with the consumer's ideology | Use simple and direct language, provide evidence and testimonials, align the message with the consumer's moral foundation |
| Increasing the visibility and communication of SMI services | Making SMI services more observable and communicable to consumers and other stakeholders | IKEA, a Swedish furniture retailer, uses distinctive and attractive packaging for its products that are made from recycled materials, and displays the environmental and social benefits of its SMI services on its website and catalogs |

| Marketing Action | Description | Example |
|---|--|--|
| Information and education | Providing factual and persuasive messages about the environmental problem and the solution and increasing customers' knowledge and awareness of the issue. | IKEA labels its products with information about their environmental impact and how customers can reduce it. |
| Information provision | Providing customers with relevant and accurate information about the environmental impacts of their behaviors and products, and how they can reduce them | Carbon labelling of food items |
| Informational value | The usefulness of the information provided by the appeal in guiding the behavior | "Grasscycling is easy and beneficial for your lawn" |
| Inspiration | A motivational state that is evoked by an external stimulus that shows consumers new possibilities and transcends typical or mundane practices | A social media campaign that features inspiring stories or images of consumers who have successfully reused or upcycled their products |
| Institutional anti-consumption messages | Advertising messages that focus on the collective benefits of reduced consumption rather than product-specific features | Patagonia's "Don't Buy This Jacket" ad that urged consumers to think twice before buying new products |
| Level of self | The degree to which the self is defined at the individual or collective level | "You can help protect the environment by composting" (individual) vs. "We can help protect the environment by composting" (collective) |
| Leverage the spillover effects of pro-environmental messages on related behaviors | Use a single message to influence multiple aspects of sustainable behavior | Use recycling as a gateway to promote green product purchase and resource conservation |
| Loyalty Programs | Offer loyalty programs that reward customers for making sustainable choices. | A grocery store offering discounts to customers who bring their own reusable shopping bags. |
| Menu design | A powerful tool for nudging customer choices in food service provision | Presenting the carbon values on a menu to make customers aware of the climate implications of their food choice |
| Message framing | Communicating the same information in diverse ways to highlight the positive or negative consequences of a behavior | Using gain frames to emphasize the benefits of reducing food waste, such as saving money and helping the environment |
| Modelling | Demonstrating how other customers or role models are performing PEBs and how products can support them | Workshops and online groups for sharing PEB tips |
| Monetary incentives | Offering discounts or charging fees to influence customers' choices of products based on their price sensitivity and perceived value. | Starbucks offers a 10-cent discount for customers who bring their own reusable cups. |
| Normative appeals | Appeals that highlight what others are doing or what others think should be done | "Join others in your community in grasscycling" |
| Nudging | Influencing consumers' choices by altering the context or framing of the options, without restricting their freedom or imposing incentives or penalties. | Using dynamic norms to communicate how more people are adopting sustainable behaviors, such as reducing meat consumption or avoiding plastic cups. |
| Nudging | A technique that influences consumer choice by presenting options in a certain way, without restricting or coercing them | Using descriptive menu labels to enhance consumer perception of the quality of menu items |
| Nudging | Using subtle cues and prompts to influence the consumers' choices and actions without restricting their options or imposing penalties | Defaults, feedback, reminders, social proof, or incentives nudges |

| Marketing Action | Description | Example |
|---|---|--|
| Nudging | Provides subtle cues or incentives that guide consumers towards more sustainable choices. | Public parks often provide recycling bins next to trash cans, subtly encouraging visitors to separate their waste and recycle. |
| Offering incentives and rewards | Using pricing, rebates, subsidies, or loyalty programs to encourage consumers to adopt water-saving behaviors and appliances | Discounts, vouchers, cashbacks, points |
| Opt-out strategy | Offering doggy bags by default to consumers, unless they decline | The server says: "I'll pack your leftovers in a doggy bag for you." |
| Partnership | Collaborating with other stakeholders to create synergies and leverage resources | Creating policies, regulations, or campaigns that support doggy bag usage, such as requiring restaurants to offer doggy bags, or launching a nationwide community-based social marketing campaign |
| Personal relevance and involvement | Making customers feel connected and committed to the environmental cause and appealing to their intrinsic or extrinsic motivations. | Patagonia creates a community of environmentally conscious customers who share their stories and values on its website and social media. |
| Personalized Packaging | Offer personalized packaging options where customers can have their names or initials printed on the product or its packaging. | A coffee shop printing customers' names on their coffee cups. |
| Place | Providing easy access and availability of sustainable products and services | Using online platforms, mobile apps, or delivery services to offer doggy bags, or creating physical or social environments that support doggy bag usage |
| Positioning | Communicating the benefits of sustainable behaviors in a way that appeals to consumers' values, emotions, and self-identity | Highlighting the financial, emotional, or social benefits of using doggy bags to reduce food waste |
| Price | Using pricing strategies that encourage sustainable consumption | Offering discounts, rewards, or subsidies for customers who use doggy bags, or imposing taxes, fees, or penalties for those who do not |
| Product | Designing products and services that are more sustainable, convenient, and attractive | Using eco-friendly, biodegradable, or reusable containers for doggy bags |
| Product and service innovation | Enabling and facilitating sustainable consumption through material and technological improvements | Concentrated and enzyme-based detergents and advertisements |
| Promoting alternative sources | Providing products and services that enable consumers to use rainwater, graywater, or stormwater for their water needs | Water tanks, pumps, filters, irrigation systems |
| Promotion | Using persuasive messages and techniques that influence consumers' attitudes and behaviors | Using social proof, testimonials, or endorsements to promote doggy bag usage, or providing information, feedback, or reminders about the benefits of reducing food waste |
| Providing consumers with functional and emotional value | Ensuring that SMI services meet consumers' functional needs and emotional needs to enhance their perceived value and satisfaction | Patagonia, a US outdoor clothing company, provides consumers with high-quality and durable products that are made from recycled materials and organic cotton, and supports environmental causes and movements, creating functional and emotional value for consumers |

| Marketing Action | Description | Example |
|--|---|--|
| Providing information about the positive actions of dissociative out-groups in public settings | Communicating that a group that consumers want to avoid being associated with is performing well on a positive behavior | Telling business students that computer science students are more effective in composting |
| Return mechanism | The way of collecting retired smartphones from consumers, varying in convenience and ease of use. | Pick-up service: "We will arrange a courier to pick up your old smartphone from your home at your preferred time." Drop-off station: "You can drop off your old smartphone at any of our partner locations near you." |
| Reward type | The type of incentive offered to consumers for returning their old smartphones, either monetary or non-monetary. | Cash reward: "We will pay you €120 for your old smartphone." Donation reward: "We will plant 24 trees on your behalf for your old smartphone." Mix of cash and donation: "We will pay you €90 and plant 6 trees on your behalf for your old smartphone." |
| Reward-based game design elements | Game features such as points, badges, and trophies that provide positive reinforcement and feedback for performing sustainable behaviors | A gamified app that rewards consumers with points for turning off lights, badges for using cold water for laundry, and trophies for achieving a certain number of badges |
| Segmentation | Dividing the target market into groups based on their environmental attitudes, values, beliefs, and behaviors | Committed, conflicted, convenient, and disengaged segments |
| Segmentation | Identifying and targeting consumers who are more likely to adopt sustainable behaviors | Targeting consumers who have high environmental concern, self-efficacy, and social norms |
| Short-term and long-term rewards | Rewards that are compatible with consumers' economic and social goals, such as bill savings and environmental benefits | A gamified app that shows consumers how much money they save by reducing their energy consumption and how much they contribute to reducing greenhouse gas emissions |
| Social marketing | A strategy to enhance citizens' mental and physical health by employing influencing communication methods and techniques | Information graphic on the carbon footprint of food products |
| Social Marketing | Applying marketing principles and techniques to influence social change for the public good, such as health, safety, or environmental issues. | Using persuasive messages, segmentation, targeting, and positioning to motivate consumers to adopt sustainable behaviors or support a social cause. |
| Social marketing | A marketing approach that aims to change consumer behavior for the benefit of individual consumers and society as a whole | Displaying information on the health and environmental qualities of food on restaurant menus |
| Social Marketing | Uses marketing techniques to influence social behaviors that benefit individuals or society. | The "Don't Mess with Texas" campaign aims to reduce littering in Texas. |
| Social marketing and engagement | Influencing consumer norms and values through social mechanisms and partnerships | Marks and Spencer's 'shwopping' initiative |
| Social marketing techniques | Applying marketing principles and techniques to influence consumers' behavior for social good | Using information campaigns to educate consumers about food waste and its impact, or using prompts to remind consumers to plan and store their food properly |
| Social norms | Use peer pressure and mimetic effects to influence consumers to adopt reusable cups and avoid disposable cups. For | The Responsible Cafes movement encourages cafes to offer discounts to consumers who bring their own reusable |

| Marketing Action | Description | Example |
|--|--|---|
| | example, by showing how many people are using reusable cups or by asking consumers if they need a disposable cup before offering one. | cups and to display signs that show how many disposable cups they have saved. |
| Social norms | Creating and reinforcing positive social norms around doggy bag use, such as displaying signs, stickers, or posters that encourage consumers to take home leftovers | The restaurant has a sticker that says: "Be a food waste hero. Take your leftovers home." |
| Subordinate-options strategy | Providing a choice between distinct types of doggy bags within the opt-out strategy | The server says: "Would you like a paper or a plastic doggy bag for your leftovers?" |
| Sustainable luxury | The integration of sustainability into luxury products and brands that can appeal to consumers who value both status and environmentalism | Stella McCartney's vegan and eco-friendly fashion line |
| Use persuasive appeals that match the moral foundations of the target consumers | Tailor the message to the values and beliefs of liberals or conservatives | Use fairness and harm reduction for liberals, use loyalty, authority, and purity for conservatives |
| Using group affirmation tasks to reduce the negative reactions to dissociative out-group information | Giving consumers an opportunity to affirm their group identity and values before exposing them to the information about the dissociative out-group | Asking business students to write about why their values are important to them and their fellow students |
| Using reward-based game mechanics | Game elements that provide positive reinforcement for desired behaviors, such as points, badges, and trophies | In the game "Reduce Your Juice," players earn points, badges, and trophies for successfully completing energy-saving tasks |
| Value-in-behavior | Enhancing the perceived benefits of performing sustainable behaviors, such as functional, economic, emotional, social, and ecological value | Users perceive that turning off electricity switches is easy, cost-saving, satisfying, socially desirable, and environmentally friendly |
| Varying the public versus private nature of the setting | Manipulating the degree to which consumers are aware of their publicly displayed aspects of the self | Show consumers how they are being observed by others (e.g., cameras being shown publicly, etc.) |
| Waste disposal infrastructure | Provide adequate and accessible waste bins for compostable cups and organic waste and educate consumers on how to dispose of them correctly. Alternatively, encourage consumers to return compostable cups to cafes for proper disposal. | The WOMAD music festival employs zero waste solutions by diverting waste away from landfills and into a sustainable pathway through full composting facilities and appointing 'bin ambassadors to help attendees fully recycle. |
| Word-of-mouth | Encouraging users to communicate and interact with others about the app and the sustainable consumption behaviors | The gamified app enables users to share their scores, badges, and tips with their friends and family via social media |

9.3 WEB SCRAPING CODES

9.3.1 AWARDS SITES

9.3.1.1 CANNES LION — SUSTAINABLE DEVELOPMENT GOALS AWARDS

9.3.1.1.1 2018

<https://www.lovethe.com>

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{"_id":"CannesLionSDG_2018_SDG","startUrl":["https://www.lovethe.com/work-awards/results/cannes-lions/sustainable-development-goals?years=2018&award_levels=grandprix%2Cgold%2Csilver%2Cbronze%2Cshortlist&categories=5919%2C6286%2C5828%2C5882%2C5979%2C6313%2C5870"],"selectors":[{"clickActionType":"real","clickElementSelector":"button span.typography","clickElementUniquenessType":"uniqueText","clickType":"clickMore","delay":2000,"discardInitialElements":"do-not-discard","id":"Entries","multiple":true,"parentSelectors":["_root"],"selector":"div.css-1tp0a6c","type":"SelectorElementClick"},{"id":"CaseBoards","multiple":false,"parentSelectors":["Entries"],"selector":"img","type":"SelectorImage"},{"id":"Category","multiple":false,"parentSelectors":["Entries"],"regex":"","selector":"p:nth-of-type(1)","type":"SelectorText"},{"id":"EntryName","multiple":false,"parentSelectors":["Entries"],"regex":"","selector":"h3","type":"SelectorText"},{"id":"BusinessAndAgency","multiple":false,"parentSelectors":["Entries"],"regex":"","selector":"p:nth-of-type(2)","type":"SelectorText"},{"id":"Trophy","multiple":false,"parentSelectors":["Entries"],"regex":"","selector":"span.css-cgzywn","type":"SelectorText"}]}
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9.3.1.1.2 2019

<https://www.lovethe.com>

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<https://www.lovethework.com>

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<https://www.lovethework.com>

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9.3.1.1.5 2022

<https://www.lovethework.com>

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9.3.1.1.6 2023

<https://www.lovethework.com>

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9.3.1.1.7 2024

<https://www.lovethehwork.com>

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9.3.1.2 D&AD AWARDS

<https://www.dandad.org>

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9.3.1.3 EFFIE AWARDS — POSITIVE CHANGE AWARDS

<https://www.effie.org>

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9.3.1.4 THE ONE SHOW — GREEN PENCIL

<https://www.oneclub.org>

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9.3.1.5 CAMPAIGN AD NET ZERO WEB SCRAPER FOR 2022 (JSON)

<https://www.campaignadnetzeroawards.com/>

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9.3.1.6 GLOBAL GOOD AWARDS

9.3.1.6.1 2022

<https://globalgoodawards.co.uk>

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9.3.1.6.2 2023

<https://globalgoodawards.co.uk>

```
{"_id":"GlobalGoodAwards2023","startUrl":["https://globalgoodawards.co.uk/environmental-behaviour-change-2023-winners/"],"selectors":[{"id":"Category","multiple":false,"parentSelectors":["_root"],"regex":"","selector":"h2 span","type":"SelectorText"},{"id":"WinnerName","multiple":true,"parentSelectors":["_root"],"regex":"","selector":"div:nth-of-type(6) div.vc_column-inner, .vc_col-sm-12 .wpb_text_column div.wpb_wrapper","type":"SelectorText"},{"id":"Description","multiple":true,"parentSelectors":["_root"],"regex":"","selector":".vc_col-sm-8 .wpb_text_column div","type":"SelectorText"}]}
```

9.3.1.6.3 2024

<https://globalgoodawards.co.uk>

```
{"_id":"GlobalGoodAwards2024","startUrl":["https://globalgoodawards.co.uk/behaviour-change-campaign-2024-winners/"],"selectors":[{"id":"Category","multiple":false,"parentSelectors":["_root"],"regex":"","selector":"h2 span","type":"SelectorText"},{"id":"WinnerName","multiple":true,"parentSelectors":["_root"],"regex":"","selector":"div:nth-of-type(6) div.vc_column-inner, .vc_col-sm-12 .wpb_text_column div.wpb_wrapper","type":"SelectorText"},{"id":"Description","multiple":true,"parentSelectors":["_root"],"regex":"","selector":".vc_col-sm-8 .wpb_text_column div","type":"SelectorText"}]}
```

9.3.1.7 THE DRUM MARKETING AWARDS

<https://www.thedrummarketingawards.com>

```
{"_id":"TheDrumAwards","startUrl":["https://www.thedrummarketingawards.com/americas/en/page/past-awards-2024#/dma-amer/2024/sustainability/financing-the-future-gogreen-financing-and-california-s-leap-toward-energy-efficiency","https://www.thedrummarketingawards.com/americas/en/page/past-awards-2024#/dma-amer/2024/sustainability/lightdrop-and-ocean-bottle-s-campaign-to-clean-"]}
```

oceans", "https://www.thedrummarketingawards.com/emea/en/page/results#/dma-emea/2024/sustainability/sokito-change-the-game", "https://www.thedrummarketingawards.com/emea/en/page/results#/dma-emea/2024/sustainability/rewilding-mode", "https://www.thedrummarketingawards.com/emea/en/page/results#/dma-emea/2024/sustainability/recover-e-putting-the-brakes-on-the-broken-e-waste-model"], "selectors": [{"id": "CampaignName", "multiple": false, "parentSelectors": ["_root"], "regex": "", "selector": "div.n-title", "type": "SelectorText"}, {"id": "Company", "multiple": false, "parentSelectors": ["_root"], "regex": "", "selector": ".n-company span", "type": "SelectorText"}, {"id": "Client", "multiple": false, "parentSelectors": ["_root"], "regex": "", "selector": ".n-client span", "type": "SelectorText"}, {"id": "Description", "multiple": false, "parentSelectors": ["_root"], "regex": "", "selector": "div.n-description", "type": "SelectorText"}]}

9.3.2 PDF FILES

Prerequisite: PDFs from Campaign Ad Net Zero (herein named WinnersBook2023.pdf and WinnersBook2024.pdf)

```
import fitz # PyMuPDF
import pandas as pd

def extract_awards(pdf_path, year):
    doc = fitz.open(pdf_path)
    entries = []
    category = ""

    for page in doc:
        text = page.get_text()
        lines = text.split("\n")
        i = 0
        while i < len(lines):
            line = lines[i].strip()
            # Detect category in ALL CAPS and likely title
            if line.isupper() and 3 < len(line) < 80:
                category = line
            # Detect WINNER line
            if line.startswith("WINNER:"):
                winner = line.replace("WINNER:", "").strip()
                project = ""
                description = []

                i += 1
                while i < len(lines):
                    next_line = lines[i].strip()
                    if next_line.startswith("PROJECT:"):
                        project = next_line.replace("PROJECT:", "").strip()
                    elif next_line.startswith("HIGHLY COMMENDED") or
next_line.startswith("SHORTLISTED") or next_line.startswith("WINNER:") or
next_line.isupper():
                        break # Stop on next section
                    else:
                        description.append(next_line)
                    i += 1
```

```
entries.append({
    "Year": year,
    "Category": category,
    "Winner": winner,
    "Project": project,
    "Description": " ".join(description)
})
else:
    i += 1
return entries
```

Use this with your PDF files

```
data_2023 = extract_awards("WinnersBook2023.pdf", 2023)
```

```
data_2024 = extract_awards("WinnersBook2024.pdf", 2024)
```

Combine and export

```
all_data = pd.DataFrame(data_2023 + data_2024)
```

```
all_data.to_csv("Campaign_Awards_Combined.csv", index=False)
```

```
print("Exported to Campaign_Awards_Combined.csv")
```

9.3.3 IMAGES

Prerequisite: image_links.csv with URLs to images (column URL)

```
import pandas as pd
import requests
import os

# Load CSV
df = pd.read_csv("image_links.csv") # Replace with your actual CSV filename
save_dir = "downloaded_images"
os.makedirs(save_dir, exist_ok=True)

for idx, row in df.iterrows():
    year = str(row["Year"])
    campaign = str(row["Campaign"]).replace(" ", "_").replace("/", "_").replace("\\", "_")
    url = row["URL"]

    # Extract file extension from URL or default to .jpg
    ext = os.path.splitext(url)[1]
    if not ext or len(ext) > 5:
        ext = ".jpg"

    # Construct filename as year_campaign_index.ext
    filename = f"{year}_{campaign}_{idx+1}{ext}"
    filepath = os.path.join(save_dir, filename)

    try:
        response = requests.get(url, timeout=10)
        if response.status_code == 200:
            with open(filepath, "wb") as f:
                f.write(response.content)
            print(f"Downloaded: {filename}")
        else:
            print(f"Failed to download (status {response.status_code}): {url}")
    except Exception as e:
        print(f"Error downloading {url}: {e}")
```

9.3.4 VIDEOS TRANSCRIPTIONS

Prerequisites: Dictionary file (frequency_dictionary_en_82_765.txt from https://raw.githubusercontent.com/wolfgarbe/SymSpell/master/SymSpell/frequency_dictionary_en_82_765.txt), links.csv file with a column named URL, and Ollama (already running).

```
!pip install -U yt-dlp
```

```
import yt_dlp
```

```
def download_video(url, output_path='downloads/%(title)s.%(ext)s'):  
    ydl_opts = {  
        'outtmpl': output_path,  
        'format': 'bestvideo+bestaudio/best',  
        'merge_output_format': 'mp4',  
    }  
    with yt_dlp.YoutubeDL(ydl_opts) as ydl:  
        ydl.download([url])
```

```
def detect_platform(url):  
    if "youtube.com" in url or "youtu.be" in url:  
        return "YouTube"  
    elif "vimeo.com" in url:  
        return "Vimeo"  
    elif "tiktok.com" in url:  
        return "TikTok"  
    elif "facebook.com" in url:  
        return "Facebook"  
    else:  
        return "Unknown"
```

```
import os  
import subprocess
```

```
def process_video_from_url(url, audio_filename="audio.wav"):  
    print(f"Detected platform: {detect_platform(url)}")
```

```
# Step 1: Download the video
```

```

download_video(url)

# Step 2: Find the downloaded video file
downloaded_files = os.listdir("downloads")
video_files = [f for f in downloaded_files if f.endswith((".mp4", ".mkv", ".webm",
".mov"))]
if not video_files:
    print("No video file found.")
    return

video_path = os.path.join("downloads", video_files[-1]) # Use most recent download
print(f"Using video: {video_path}")

# Step 3: Extract audio using ffmpeg
audio_path = os.path.join("downloads", audio_filename)
command = [
    "ffmpeg", "-y", "-i", video_path,
    "-vn", "-acodec", "pcm_s16le", "-ar", "16000", "-ac", "1",
    audio_path
]
subprocess.run(command, stdout=subprocess.PIPE, stderr=subprocess.PIPE)

# Step 4: Transcribe audio using Whisper (Large Model, English)
try:
    import whisper
except ImportError:
    print("Installing Whisper...")
    subprocess.run(["pip", "install", "openai-whisper"], check=True)
    import whisper

print("Loading Whisper model: large (this may take time and RAM)...")
model = whisper.load_model("large")

print("Transcribing with language='en'...")
result = model.transcribe(audio_path, language="en")
transcription = result["text"]

print("Transcription complete. Here's a preview:")
print(transcription[:1000]) # Preview first 1000 characters

```

```

    return transcription

# Ensure Ollama daemon is running (for local LLM use)
import subprocess
import shutil
import os
import time

# Check if ollama is installed and accessible
ollama_path = shutil.which("ollama")
if not ollama_path:
    ollama_path = "/opt/homebrew/bin/ollama" # fallback for macOS Homebrew

if not shutil.which("ollama") and not os.path.exists(ollama_path):
    raise EnvironmentError(" Ollama not found. Please install it or add it to PATH.")

# Start ollama serve if not already running
try:
    # Check if server responds
    import requests
    resp = requests.get("http://localhost:11434")
    if resp.status_code == 200:
        print("Ollama server already running.")
except:
    print("Starting Ollama daemon with 'ollama serve'...")
    subprocess.Popen([ollama_path, "serve"], stdout=subprocess.DEVNULL,
stderr=subprocess.DEVNULL)
    time.sleep(5) # give it a few seconds to boot

# STEP 1: Install all required packages (run this once)
!pip install yt-dlp pandas openai-whisper send2trash langdetect deep-translator
opencv-python pytesseract textblob langdetect openai symspellpy

import urllib.request

url =
"https://raw.githubusercontent.com/wolfgarbe/SymSpell/master/SymSpell/frequency_dictionary_en_82_765.txt"
output = "frequency_dictionary_en_82_765.txt"
urllib.request.urlretrieve(url, output)

```

```

print("Downloaded frequency_dictionary_en_82_765.txt successfully.")

# Make sure Tesseract OCR is properly located (especially on macOS with Homebrew)
import os
os.environ["TESSERACT_CMD"] = "/opt/homebrew/bin/tesseract"

# STEP 2: Import libraries
import pandas as pd
from yt_dlp import YoutubeDL
import whisper
import os
import cv2
import pytesseract
from send2trash import send2trash
from langdetect import detect
from deep_translator import GoogleTranslator

# Explicitly set Tesseract command path (especially for macOS + Anaconda)
pytesseract.pytesseract.tesseract_cmd = "/opt/homebrew/bin/tesseract" # or try
"/usr/local/bin/tesseract"

# STEP 3: Load YouTube links from CSV
df = pd.read_csv('links.csv')
video_links = df['URL'].tolist()
df['transcription_or_subtitle'] = ""

# STEP 4: Load Whisper model
model = whisper.load_model('base')

# Transcribe only rows with valid YouTube links
import time

for idx, row in df.iterrows():
    url = row['URL']

    # Check if the URL is a valid YouTube link
    if not isinstance(url, str) or not url.strip().startswith("http"):
        print(f"Skipping row {idx}: No valid YouTube link.")
        continue # Skip to the next row

```

```

from yt_dlp import YoutubeDL
import os
from send2trash import send2trash
from langdetect import detect
from deep_translator import GoogleTranslator

try:
    with YoutubeDL({'quiet': True}) as ydl_info:
        info = ydl_info.extract_info(url, download=False)
        title = info.get('title', 'unknown_title').replace(' ', '_').replace('/', '_')
        audio_filename = f"{title}.%(ext)s"

    ydl_opts_audio = {
        'format': 'bestaudio/best',
        'postprocessors': [{
            'key': 'FFmpegExtractAudio',
            'preferredcodec': 'mp3',
            'preferredquality': '192',
        }],
        'outtmpl': audio_filename,
        'quiet': True
    }

    with YoutubeDL(ydl_opts_audio) as ydl:
        info = ydl.extract_info(url, download=True)
        title = info.get('title', 'unknown_title').replace(' ', '_').replace('/', '_')
        audio_path = f"{title}.mp3"

    result = model.transcribe(audio_path)
    transcript_text = result['text'].strip()

    if not transcript_text:
        print("No speech detected. Extracting visual text via OCR...")
        ydl_opts_video = {
            'format': 'mp4',
            'outtmpl': f"{title}.%(ext)s",
            'quiet': True
        }
        with YoutubeDL(ydl_opts_video) as ydl:

```

```

        ydl.download([url])
        video_path = f"{title}.mp4"
        transcript_text = extract_text_with_ocr(video_path)
        send2trash(video_path)

    try:
        detected_lang = detect(transcript_text)
        if detected_lang != 'en':
            transcript_text = GoogleTranslator(source='auto',
target='en').translate(transcript_text)
        except:
            print("Language detection or translation failed.")

    df.at[idx, 'transcription_or_subtitle'] = transcript_text

    txt_file = f"{title}.txt"
    with open(txt_file, "w", encoding="utf-8") as f:
        f.write(transcript_text)
    send2trash(txt_file)
    send2trash(audio_path)
    print(f"Processed and cleaned: {url}")

except Exception as e:
    print(f"Error processing {url}: {e}")

# STEP 6: Save the output to CSV
df.to_csv("Transcripts Output.csv", index=False)
print("Saved: Transcripts Output.csv")

# Final cleanup: Add spelling correction, filter short fluent sentences, and export for
local LLM tools

import pandas as pd
import re
from symspellpy import SymSpell, Verbosity

# Load CSV
df = pd.read_csv("Transcripts Output.csv")

# Setup SymSpell

```

```
sym_spell = SymSpell(max_dictionary_edit_distance=2, prefix_length=7)
sym_spell.load_dictionary("frequency_dictionary_en_82_765.txt", term_index=0,
count_index=1)
```

```
def basic_ocr_cleanup(text):
```

```
    if not isinstance(text, str):
```

```
        return text
```

```
    # Remove artifacts
```

```
    text = re.sub(r"(\b\w+\b)(\1\b)+", r"\1", text)
```

```
    text = re.sub(r"^[a-zA-Z0-9.,!?\n]", "", text)
```

```
    text = re.sub(r"\s+", " ", text).strip()
```

```
    # Fix known OCR words
```

```
    text = text.replace("SOKITQ", "SOKITO")
```

```
    text = re.sub(r"\bkn w\b", "know", text)
```

```
    text = re.sub(r"\bvisibilit\b", "visibility", text)
```

```
    text = re.sub(r"\bmrtaaaon\b", "narration", text)
```

```
    # Sentence split
```

```
    raw_sentences = re.split(r"(?<=[!?])\s+", text)
```

```
    cleaned_sentences = []
```

```
    for sent in raw_sentences:
```

```
        sent = sent.strip()
```

```
        if len(sent.split()) < 5:
```

```
            continue
```

```
        corrected = []
```

```
        for word in sent.split():
```

```
            suggestions = sym_spell.lookup(word.lower(), Verbosity.CLOSEST,
max_edit_distance=2)
```

```
            if suggestions:
```

```
                corrected.append(suggestions[0].term)
```

```
            else:
```

```
                corrected.append(word)
```

```
            cleaned_sentences.append(" ".join(corrected))
```

```
    return " ".join(cleaned_sentences)
```

```
    # Apply correction
```

```

df['transcription_or_subtitle'] = df['transcription_or_subtitle'].apply(basic_ocr_cleanup)

# Save corrected
df.to_csv("Transcripts Refined Spellcheck.csv", index=False)

# Optional: Export plain .txt file for local LLM rewrite via LM Studio or Ollama
with open("ocr_sentences_for_llm.txt", "w", encoding="utf-8") as f:
    for row in df['transcription_or_subtitle']:
        if isinstance(row, str):
            f.write(row + "\n")

print("Saved spell-corrected CSV and LLM-friendly .txt export")

# Final enhancement: Use local LLM (via Ollama) to rewrite cleaned text into fluent
marketing copy

import pandas as pd
import requests
import json

# Function to call local Ollama model (e.g., mistral)
def local_llm_rewrite(prompt, model="mistral", stream=False):
    url = "http://localhost:11434/api/generate"
    payload = {
        "model": model,
        "prompt": prompt,
        "stream": stream
    }

    response = requests.post(url, json=payload, stream=stream)
    if not stream:
        return response.json()["response"].strip()
    else:
        text = ""
        for line in response.iter_lines():
            if line:
                part = json.loads(line.decode("utf-8"))
                text += part.get("response", "")
        return text.strip()

```

```

# Load previously cleaned CSV
df = pd.read_csv("Transcripts Refined Spellcheck.csv")

# Apply LLM rewriting row-by-row
def rewrite_column_with_llm(text):
    if isinstance(text, str) and len(text.strip()) > 20:
        prompt = (
            "Rewrite this messy marketing OCR text into fluent English. "
            "Keep the marketing tone, fix grammar, and preserve the original intent: \n\n"
            f"{text}"
        )
    try:
        return local_llm_rewrite(prompt)
    except Exception as e:
        print("LLM call failed:", e)
        return text
    return text

# Rewrite column and save
df["transcription_or_subtitle"] =
df["transcription_or_subtitle"].apply(rewrite_column_with_llm)
df.to_csv("Transcripts LLM.csv", index=False)
print("Saved final LLM-enhanced transcript to: Transcripts LLM.csv")

import os

# Clean up intermediate LLM input file

for file in ["ocr_sentences_for_llm.txt", "Transcripts Refined Spellcheck.csv"]:
    if os.path.exists(file):
        os.remove(file)
        print(f"Deleted: {file}")

```

9.4 SCRAPED AWARDS WINNING CAMPAIGNS

Table 38 List of Awards-Winning Marketing Campaigns for Sustainability

| Year | Awards | Entry Name | Company |
|------|--------------------|---|--|
| 2024 | Cannes Lion SDG | FILTER CAPS | FILSA COLOMBIA |
| 2024 | Cannes Lion SDG | SIGHTWALKS | SOL CEMENT |
| 2024 | Cannes Lion SDG | THE MOVE TO -15 | DP WORLD |
| 2024 | Cannes Lion SDG | CONTRAILS: MAKING FLYING MORE SUSTAINABLE WITH GOOGLE AI | GOOGLE |
| 2024 | Cannes Lion SDG | ROCKSEEDS | TBS |
| 2024 | Cannes Lion SDG | FORTUM+FISHHEART | FORTUM |
| 2024 | Cannes Lion SDG | DROPS OF JOY | LAY'S |
| 2023 | Cannes Lion SDG | THE BIOCHAR PROJECT BY LAY'S | LAY'S |
| 2023 | Cannes Lion SDG | THE GREEN SEARCH | ANDEL |
| 2023 | Cannes Lion SDG | TURNSTILE TURBINES | IBERDROLA |
| 2023 | Cannes Lion SDG | SELF-SUFFICIENT FOOD CART | CENTElsa BY NEXANS |
| 2023 | Cannes Lion SDG | VEHICLE OF CHANGE | VATTENFALL |
| 2022 | Cannes Lion SDG | TURN TO COLD | PROCTER & GAMBLE - TIDE |
| 2022 | Cannes Lion SDG | PLASTIC FISHING TOURNAMENT | AB INBEV / CORONA |
| 2022 | Cannes Lion SDG | SMART FILL | UNILEVER |
| 2022 | Cannes Lion SDG | RENAULT - PLUG-INN | RENAULT |
| 2022 | Cannes Lion SDG | PIÑATEX | DOLE SUNSHINE COMPANY + ANANAS ANAM |
| 2021 | Cannes Lion SDG | TIMELAPSE IN GOOGLE EARTH | GOOGLE |
| 2020 | Cannes Lion SDG | CONTRACT FOR CHANGE | ABINBEV |
| 2019 | Cannes Lion SDG | SNAP PACK | CARLSBERG |
| 2019 | Cannes Lion SDG | THE LION'S SHARE | MARS |
| 2019 | Cannes Lion SDG | DO BLACK - THE CARBON LIMIT CREDIT CARD | DOCONOMY |
| 2018 | Cannes Lion SDG | NATURE REPRESENTED | SAMBITO |
| 2018 | Cannes Lion SDG | BLACK SUPERMARKET | CARREFOUR |
| 2018 | Cannes Lion SDG | GREEN DEFINITION | NATIONAL GEOGRAPHIC |
| 2018 | Cannes Lion SDG | ECLIPSE CASE STUDY | NEST LABS |
| 2018 | Cannes Lion SDG | CRICKET BREAD | FAZER |

| Year | Awards | Entry Name | Company |
|-------------|-----------------------------------|---|--|
| 2018 | Cannes Lion SDG | THE NEST ADDRESS | ENEL |
| 2024 | World Sustainability Awards | World's Largest College Recycling Event | Eastman |
| 2024 | The Drum Awards | Recover-E: putting the brakes on the broken e- waste model | Envision Racing |
| 2024 | The Drum Awards | Rewilding Mode | Prime Weber Shandwick |
| 2024 | The Drum Awards | Sokito. Change the game. | addmustard |
| 2024 | The Drum Awards | Lightdrop and Ocean Bottle's Campaign to Clean Oceans | Lightdrop |
| 2024 | The Drum Awards | Financing the Future: GoGreen Financing and California's Leap Toward Energy Efficiency | Riester |
| 2016 | DANDAD Impact | Brewtroleum | |
| 2016 | DANDAD Impact | Just | |
| 2016 | DANDAD Impact | Edible Six Pack Rings | |
| 2016 | DANDAD Impact | Reversible Barcode | |
| 2010 | One Show Green Pencil | SWIPE for a Million Trees | MILLION TREES NYC |
| 2019 | One Show Green Pencil | Save our Species | Lacoste |
| 2020 | One Show Green Pencil | For Seasons - composed by climate data | NDR Elbphilharmonie Orchester |
| 2020 | One Show Green Pencil | Notpla | Notpla |
| 2022 | One Show Green Pencil | Pinatex | Dole Sunshine Company + Ananas Anam |
| 2022 | One Show Green Pencil | #TurnToCold | Procter & Gamble / Tide |
| 2022 | One Show Green Pencil | Salla 2032 | House of Lapland |
| 2022 | One Show Green Pencil | Hope Reef | Mars Pet - Sheba |
| 2022 | One Show Green Pencil | VB Solar Exchange | Carlton & United Breweries |
| 2022 | One Show Green Pencil | WATERLIGHT | E-DINA ENERGY |
| 2023 | Campaign Ad Net Zero | Life Extending Stickers | Makro with Grey Colombia |
| 2023 | Campaign Ad Net Zero | Cisco Live 2023 Amsterdam | Cisco with George P. Johnson |
| 2023 | Campaign Ad Net Zero | Reduce, Reinvest, Repeat: Helping Sainsbury's Argos slash its media carbon footprint | Sainsbury's with EssenceMediacomX |
| 2023 | Campaign Ad Net Zero | Reckitt Virtual Production | Reckitt |
| 2023 | Campaign Ad Net Zero | | Media Bounty |
| 2023 | Campaign Ad Net Zero | ITV's approach to Net Zero transformation | ITV |
| 2023 | Campaign Ad Net Zero | Inspiring people everywhere towards a new way of living | dentsu |
| 2023 | Campaign Ad Net Zero | BRITA | BRITA with Iris |
| 2023 | Campaign Ad Net Zero | Define Your Load | Flock Freight with Maximum Effort |
| 2023 | Campaign Ad Net Zero | Reckitt Virtual Productions | Reckitt Virtual Productions with MurphyCobb |

| Year | Awards | Entry Name | Company |
|-------------|----------------------|--|---|
| 2023 | Campaign Ad Net Zero | eBay & Love Island | ITV with EssenceMediacom |
| 2023 | Campaign Ad Net Zero | Cash for Trash | Currys with AMV BBDO |
| 2023 | Campaign Ad Net Zero | Unwasted Beer | Heineken with Publicis Dublin and Le Pub |
| 2023 | Campaign Ad Net Zero | giffgaff - We're up to Good | giffgaff with MG OMD and Neverland |
| 2023 | Campaign Ad Net Zero | How NatWest is driving sustainable behaviour change across homes, lifestyles, and businesses | NatWest |
| 2023 | Campaign Ad Net Zero | Here We Flo: Keeping the Planet Clean in Life's Messiest Moments | Sky Media with Hatch London |
| 2023 | Campaign Ad Net Zero | The Plastic Forecast - Minderoo Foundation | Minderoo Foundation with M&C Saatchi Group AUNZ |
| 2023 | Campaign Ad Net Zero | | Scope3 |
| 2023 | Campaign Ad Net Zero | Vodafone, Home of Trade In | Vodafone Ireland with Folk Wunderman Thompson |
| 2023 | Campaign Ad Net Zero | Bump Into Brum | Possible with Media Bounty and ACT Climate Labs |
| 2024 | Campaign Ad Net Zero | | Global |
| 2024 | Campaign Ad Net Zero | | OpenX |
| 2024 | Campaign Ad Net Zero | | Greenbids |
| 2024 | Campaign Ad Net Zero | Uncrap the world | Who Gives a Crap with The Guardian and Craft Media |
| 2024 | Campaign Ad Net Zero | The Greener Grid | OVO with Goodstuff and JCDecaux UK |
| 2024 | Campaign Ad Net Zero | eBay Twiggy Full Circle | eBay with EssenceMediacom |
| 2024 | Campaign Ad Net Zero | Walk of Fame | Sky Zero with House 337 |
| 2024 | Campaign Ad Net Zero | Carbon Skidmark - Channel 4's Change Climate Season | 4Creative with 4Creative X OMD |
| 2024 | Campaign Ad Net Zero | Living our purpose | MPB |
| 2024 | Campaign Ad Net Zero | I came by train: Train Heroes | Trainline with Wavemaker UK |
| 2024 | Campaign Ad Net Zero | Scaling Sustainability in Digital Advertising: Pioneering Efforts in Reducing GHG Emissions | L'Oréal UK and Ireland with Impact Plus |
| 2024 | Campaign Ad Net Zero | From Couch to Carbon Zero: Embedding Sustainability at Immediate | Immediate |
| 2024 | Campaign Ad Net Zero | Leading the Industry in Sustainable Production and Positive Environmental Impact | Sky |
| 2024 | Campaign Ad Net Zero | Sustainably Made | Hogarth |
| 2024 | Campaign Ad Net Zero | Spotify x Greenbids: More Performance, Less Carbon | Spotify with Greenbids |
| 2024 | Campaign Ad Net Zero | The Cupboard To Fight Food Waste | Gourmet Market Thailand with Denstu Creative Thailand |
| 2024 | Campaign Ad Net Zero | Means to an End - Our Low Carbon Hustle | Papaya Films |
| 2024 | Campaign Ad Net Zero | Flying Guardians | AlmapBBDO |
| 2024 | Campaign Ad Net Zero | Vodafone Sustainability Programme | Vodafone, dentsu and Cozero |
| 2024 | Campaign Ad Net Zero | L'Oreal For the Future and Impact Plus in the US and Canada | L'Oreal Group |

| Year | Awards | Entry Name | Company |
|-------------|----------------------|---|--|
| 2024 | Campaign Ad Net Zero | Our Human Moment | Droga5 Dublin |
| 2024 | Campaign Ad Net Zero | Deploying an Effective Multi-Brand Carbon Assessment and Reduction Strategy through Ad Technology | HEINEKEN France with Impact Plus and Jellyfish |
| 2024 | Campaign Ad Net Zero | Employee Green Energy Program | MobileFuse |
| 2024 | Campaign Ad Net Zero | Achieve Net Zero throughout our advertising activities | JCDecaux Cityscape |
| 2024 | Campaign Ad Net Zero | Decarbonizing your digital efforts | Footsprint |
| 2024 | Effie Awards | Stop Endocrine Disruptors | Clovin total brand campaign |
| 2024 | Effie Awards | Asshole Activists | TUSHY |
| 2024 | Effie Awards | Sabor Bajo el Mar | Helados Bon |
| 2024 | Effie Awards | Windy Retreats | Andel |
| 2024 | Effie Awards | Heinz – Picture A World Without Soil | Heinz |
| 2024 | Effie Awards | Industrial Emissions Face Mist | Industrial Emissions Face Mist |
| 2024 | Effie Awards | We light up our cities | IQOS |
| 2024 | Effie Awards | Protect Our Planet: Sustainability made easy | Procter & Gamble |
| 2024 | Effie Awards | MoneyDream | Hana Bank |
| 2024 | Effie Awards | Love Earth by Flight | Asiana Airlines |
| 2024 | Effie Awards | ATLAI – The First Public AI Reporter | Alwaleed Philanthropies |
| 2024 | Effie Awards | du AI – Powered Sustainable Digital Campaign | du Telecom |
| 2024 | Effie Awards | Selfless Shelves | Puck |
| 2024 | Effie Awards | Cards of Hope | Mashreq |
| 2024 | Effie Awards | From this Land, for this Land | Nova |
| 2024 | Effie Awards | How SeaWorld turned the tide | Yas Island |
| 2024 | Effie Awards | The Future Is Now | BYD |
| 2024 | Effie Awards | Pepsi – Pakistan’s First 100% Recycled Beverage Bottle | Pepsi |
| 2023 | Effie Awards | No trash – No problem | Getlini EKO landfill |
| 2023 | Effie Awards | The Green Search | Andel |
| 2023 | Effie Awards | Unplug Denmark | Norlys |
| 2023 | Effie Awards | Contract for Change | Michelob ULTRA |
| 2023 | Effie Awards | Solar Billboard | Heineken |
| 2023 | Effie Awards | #Coronalsland, la única isla plastic free del mundo | Corona |
| 2023 | Effie Awards | TIERR4: la IPO más urgente del mundo | Pacto Mundial de Las Naciones Unidas & B3 |
| 2023 | Effie Awards | Alimentos sin prejuicios | Bimbo Colombia |
| 2023 | Effie Awards | Mosquito vs Mosquito | QuintoAndar |
| 2023 | Effie Awards | ¿En serio hay un bar energizado usando la fotosíntesis de plantas? | CERVEZA CORONA |
| 2023 | Effie Awards | Planet Love – Temporada 2 | Pepsico Bebidas Latinoamerica |
| 2023 | Effie Awards | LA HISTORIA INCOMPLETA DEL PLACER | TULIPAN |
| 2023 | Effie Awards | EcoSaco: Del Hombro Pal Trompo, No genera desperdicios | EcoSaco |
| 2023 | Effie Awards | Reusables: Extendiendo las fechas de expiración. | SuperMax |
| 2023 | Effie Awards | The Cost of Gold | Urihi Associacao Yanomami |
| 2023 | Effie Awards | Drones versus Desertification | ARAMCO |
| 2023 | Effie Awards | Sustainable Public Places | Wall's Ice Cream |
| 2023 | Effie Awards | The only way is Ethics: How The Co-operative Bank proved that doing good is good for business. | The Co-operative Bank |
| 2023 | Effie Awards | Ariel – Helping to clean up the carbon footprint of laundry by washing colder | Ariel |
| 2023 | Effie Awards | First-ever recyclable snack wrapper | Nature Valley |
| 2023 | Effie Awards | Mayo Tackles Food Waste | Hellmann's Best Foods |
| 2022 | Effie Awards | Water Index | Reckitt-Finish |
| 2022 | Effie Awards | Skip the Rinse | Finish |
| 2022 | Effie Awards | Audio Catalogue | IKEA |

| Year | Awards | Entry Name | Company |
|-------------|-------------------|---|---|
| 2022 | Effie Awards | Cold Callers | Tide |
| 2022 | Effie Awards | Unleashing the power of generosity in the face of adversity | Crown Royal |
| 2021 | Effie Awards | Glad – Glad for Change | Glad for Change |
| 2021 | Effie Awards | Food waste reduction | IKEA |
| 2021 | Effie Awards | Real Change | Persil |
| 2021 | Effie Awards | Fossil free living within one generation | Vattenfall |
| 2021 | Effie Awards | Tomorrow's Water | Reckitt-Finish |
| 2021 | Effie Awards | Seventh Generation's Rebuttal to Trump | Seventh Generation |
| 2021 | Effie Awards | The First Account Designed for Climate Action | Bank of the West |
| 2020 | Effie Awards | The Last Straws | A&W |
| 2020 | Effie Awards | Hellmann's | Hellmann's |
| 2020 | Effie Awards | Take Back Furniture | IKEA |
| 2020 | Effie Awards | Three words to save the world | Meridian Energy |
| 2020 | Effie Awards | The New Word | Oatly |
| 2019 | Effie Awards | Planet or Plastic? | National Geographic |
| 2019 | Effie Awards | Colgate Save Water at Walmart | Colgate |
| 2019 | Effie Awards | Separate with us | Coca Cola |
| 2019 | Effie Awards | Service for receiving bed linen for reuse and recycling | IKEA |
| 2019 | Effie Awards | From Pieces of Scrap to Pieces of Art | Al Tayer Motors |
| 2019 | Effie Awards | Repurposed meals | Puck |
| 2019 | Effie Awards | Rooftop Gardens | Knorr |
| 2019 | Effie Awards | Earth Hour | DEWA |
| 2019 | Effie Awards | Intergared Marketing for Midea new windless air conditioning products | Midea |
| 2019 | Effie Awards | Chimelong Safari Park, The Friends Around You are Disappearing | Chimelong Safari Park |
| 2019 | Effie Awards | Las Playas Hablan | Jumbo |
| 2019 | Effie Awards | El Pez Invisible | Jumbo |
| 2019 | Effie Awards | Pugdy: un perro con energía infinita | Toyota Costa Rica |
| 2019 | Effie Awards | La Escuela De La Sostenibilidad | BANCOLOMBIA |
| 2018 | Effie Awards | Colgate Save Water 2017 | Colgate |
| 2018 | Effie Awards | Hangar 1 Fog Point | Hangar 1 Fog Point |
| 2017 | Effie Awards | #BringBackTheBees | Burt's Bees |
| 2017 | Effie Awards | Bring Back The Bees | Honey Nut Cheerios |
| 2017 | Effie Awards | Who We Are Is What We Leave Behind | Subaru of America |
| 2017 | Effie Awards | Brewtroleum | DB Breweries/DB Export |
| 2015 | Effie Awards | The Scarecrow | Chipotle Mexican Grill |
| 2015 | Effie Awards | Encouraging consumers to CARE TO RECYCLE products in the bathroom | CARE TO RECYCLE |
| 2015 | Effie Awards | Toss the Tube | Scott Naturals Tube-Free |
| 2015 | Effie Awards | Inglorious Fruits and Vegetables | Intermarché |
| 2015 | Effie Awards | Used Cooking Oil collection campaign 2014 | MOL |
| 2015 | Effie Awards | The Electric Side of Driving | Nissan |
| 2015 | Effie Awards | Small Cans, Big Impact | Unilever Compressed Deodorants (Sure, Dove, Vaseline) |
| 2023 | Global Good Award | Love Island Preloved Fashion | ITV & eBay |
| 2023 | Global Good Award | Sustainable Futures Network | NatWest Group |
| 2023 | Global Good Award | Environmental Protection Action of Tzu Chi, the Social Influence from Environmental Care to Social Care | Buddhist Tzu Chi Charity Foundation |
| 2022 | Global Good Award | Better Streets Programme to Tackle Fly-tipping | Keep Britain Tidy & Newham Council |
| 2022 | Global Good Award | Making the biggest shows, with the smallest footprint | ITV |

| Year | Awards | Entry Name | Company |
|------|-------------------|--|---|
| 2022 | Global Good Award | Electric Dreams salary sacrifice scheme | Octopus Electric Vehicles |
| 2024 | Global Good Award | Cats or dogs? #PickYourSide Using behavioural nudges to tackle litter. | Hubbub |
| 2024 | Global Good Award | Buy Nothing New Month | Keep Britain Tidy and Barley Communications |
| 2024 | Global Good Award | #ShakeltOut | Suffolk Waste Partnership and Barley Communications |
| 2024 | Global Good Award | The Baa-ttery Campaign | Renewi UK Services & Valpak |

9.5 NLP ANALYSIS

Prerequisite: CampaignAwardsCombined.csv file with the column Description.

9.5.1 NLP ANALYSIS OF WINNING MARKETING CAMPAIGNS FOR BEHAVIOR CHANGE

```
pip install textblob vaderSentiment afinn seaborn matplotlib transformers torch
```

```
# Load dataset (define DataFrame before cleaning)
```

```
import pandas as pd # Library for handling tabular data (like Excel or CSV)
```

```
# Load dataset into a pandas DataFrame
```

```
df = pd.read_csv("CampaignAwardsCombined.csv") # Update the path if needed
```

```
# Text Cleaning
```

```
import re
```

```
import nltk
```

```
from nltk.corpus import stopwords
```

```
from nltk.tokenize import TreebankWordTokenizer
```

```
from nltk.stem import WordNetLemmatizer
```

```
# Download required resources
```

```
nltk.download('stopwords')
```

```
nltk.download('punkt')
```

```
nltk.download('wordnet')
```

```
# Set up preprocessing tools
```

```
stop_words = set(stopwords.words('english'))
```

```
lemmatizer = WordNetLemmatizer()
```

```

tokenizer = TreebankWordTokenizer()

# Define text cleaning function
def clean_text(text):
    if pd.isna(text): # Handle missing values
        return ""
    text = text.lower() # Lowercase
    text = re.sub(r'[^\a-z\s]', "", text) # Remove punctuation and numbers
    words = tokenizer.tokenize(text) # Tokenize
    words = [lemmatizer.lemmatize(word) for word in words if word not in
stop_words] # Remove stopwords + lemmatize
    return " ".join(words)

# Apply cleaning
df['Cleaned_Description'] = df['Video transcripts'].apply(clean_text)

# Save cleaned descriptions to CSV
df[['Description', 'Cleaned_Description']].to_csv("Cleaned_Description.csv",
index=False)

# Display first few rows
print(df[['Description', 'Cleaned_Description']].head())

# Explanation of the result
print("\n What this means:")
print("Each row shows the original campaign description alongside its 'cleaned'
version.")
print("The cleaned version has:")
print("- All text converted to lowercase")
print("- Punctuation and numbers removed")
print("- Common stopwords (like 'the', 'and', 'is') removed")
print("- Words reduced to their root form (e.g., 'running' → 'run')")
print("\nThe cleaned descriptions have been saved to: Cleaned_Description.csv")

# Filter Emotional Words using the NRC Emotion Lexicon file

import os # Optional: useful for handling file paths, but not strictly needed here
import pandas as pd

# Load the NRC Emotion Lexicon from a .txt file

```

```

# Each line in the file has this format: word <tab> emotion <tab> score
# For example: "happy joy 1" means "happy" is strongly associated with "joy"
emotion_words = set() # Create an empty set to store emotional words

# Open the lexicon file and read it line by line
with open("NRC-Emotion-Lexicon-Wordlevel-v0.92.txt", "r") as f:
    for line in f:
        word, emotion, score = line.strip().split("\t") # Split the line into word, emotion,
        and score
        if int(score) == 1: # Only keep words where the emotion association is marked as
            "1" (true)
            emotion_words.add(word) # Add the word to our set

# Print how many unique emotional words were loaded from the file
print(f" Loaded {len(emotion_words)} emotional words from NRC Lexicon file.")

# Define a function to retain only emotional words in each text string
def keep_emotional_words(text):
    if pd.isna(text): # If the input is missing (NaN), return an empty string
        return ""
    # Keep only the words from the text that are present in the NRC emotion word set
    return " ".join([word for word in text.split() if word in emotion_words])

# Apply the filtering function to the cleaned text data
# This creates a new column containing only emotional words from each description
df['Emotional_Description'] = df['Cleaned_Description'].apply(keep_emotional_words)

# Show a preview of the cleaned vs emotional-filtered text
print(df[['Cleaned_Description', 'Emotional_Description']].head())

# Save results to CSV
output_file = "Emotional_Description.csv"
df[['Cleaned_Description', 'Emotional_Description']].to_csv(output_file, index=False,
encoding="utf-8")
print(f"\n Emotional_Description saved to {output_file}")

# Explanation of the result
print("\n What this means:")
print("Each row now includes:")

```

```
print("- A 'Cleaned_Description' with basic text preprocessing (lowercase, no
stopwords, lemmatized).")
print("- An 'Emotional_Description' that keeps only emotionally charged words,")
print(" based on the NRC Emotion Lexicon (e.g., words tied to joy, anger, fear, etc.).")
print("This prepares the text for emotional content analysis or emotion-based
clustering.")
```

```
pip install nrclx
```

```
# Lexical Richness Analysis (Vocabulary Diversity) with CSV Export
```

```
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd

# Ensure one row per campaign (dedupe by EntryName; keep the longest description)
dedup = (
    df.assign(_len=df['Cleaned_Description'].astype(str).str.len())
    .sort_values('_len', ascending=False)
    .drop_duplicates(subset=['EntryName'])
    .drop(columns=['_len'])
    .copy()
)

# Step 1: Compute lexical richness for each campaign description
# - Lexical richness = (Number of unique words) / (Total number of words)
# - Applied only to valid non-empty strings
dedup['Lexical_Richness'] = dedup['Cleaned_Description'].apply(
    lambda x: len(set(x.split())) / len(x.split()) if isinstance(x, str) and len(x.split()) > 0 else
    0
)

# Step 2: Plot the distribution of lexical richness across all campaign descriptions
# - Histogram shows frequency distribution
# - KDE (Kernel Density Estimate) overlays a smooth curve
sns.histplot(dedup['Lexical_Richness'], kde=True, color='skyblue')
plt.title("Lexical Richness Distribution")
plt.xlabel("Lexical Richness Score")
plt.ylabel("Number of Campaigns")
plt.tight_layout()
```

```

plt.show()

# Step 3: Display a sample of lexical richness values
print("\n Preview of Lexical Richness Scores:")
print(dedup[['EntryName', 'Lexical_Richness']].head())

# Step 4: Export lexical richness results to a CSV file
dedup[['EntryName', 'Cleaned_Description',
'Lexical_Richness']].to_csv("lexical_richness_scores.csv", index=False)

# Step 5: Interpret the meaning of the results
print("\n What this means:")
print("- The file 'lexical_richness_scores.csv' contains each campaign's title, cleaned text,
and lexical richness score.")
print("- Lexical richness indicates how varied the vocabulary is in a description.")
print("- A score near 1 means most words are unique; a score near 0 means many words
are repeated.")
print("- High lexical richness may suggest creativity, depth, or polished language use.")

# Unigram, Bigram, and Trigram Analysis with Word Clouds and Dual CSV Export

# Ensure WordCloud is available (auto-install if missing)
try:
    from wordcloud import WordCloud # Library to create word clouds from frequency
data
except ModuleNotFoundError:
    import sys, subprocess
    subprocess.check_call([sys.executable, "-m", "pip", "install", "wordcloud"])
    from wordcloud import WordCloud

import matplotlib.pyplot as plt # Library for plotting and visualization
from sklearn.feature_extraction.text import CountVectorizer # Tool to extract n-grams
and their frequencies
import pandas as pd # Data handling library

# Pick the text column safely
TEXT_COL = 'Emotional_Description' if 'Emotional_Description' in df.columns else
'Cleaned_Description'

# Step 1: Convert Emotional Descriptions into a Document-Term Matrix (DTM)

```

```

# - CountVectorizer turns text into a bag-of-words matrix (rows = docs, columns = word
counts)
# - max_df=0.9: ignores words that appear in more than 90% of documents (too
common)
# - min_df=2: ignores words that appear in fewer than 2 documents (too rare)
# - stop_words='english': removes standard English filler words (e.g., "the", "and", "in")
vectorizer = CountVectorizer(max_df=0.9, min_df=2, stop_words='english')
X = vectorizer.fit_transform(df[TEXT_COL]) # Fit and transform the emotional text data

# Combine all cleaned descriptions into one large string for analysis
text_blob = ''.join(df[TEXT_COL].astype(str)) # Joins all text rows into a single corpus

# Function to generate n-grams (e.g., unigrams, bigrams, trigrams) and their frequencies
def get_ngrams(text, n):
    vectorizer = CountVectorizer(ngram_range=(n, n)) # Specify the size of the n-gram (1
= unigram, 2 = bigram, etc.)
    X = vectorizer.fit_transform([text]) # Apply vectorizer to the full text corpus
    freqs = dict(zip(vectorizer.get_feature_names_out(), X.toarray()[0])) # Create a
frequency dictionary
    sorted_freqs = sorted(freqs.items(), key=lambda x: x[1], reverse=True) # Sort n-grams
by frequency (most common first)
    return sorted_freqs, freqs # Return both the sorted list and the full dictionary

# Generate unigrams (1-word phrases) and export them to CSV files
unigrams_list, unigram_freqs = get_ngrams(text_blob, 1)
unigrams_df = pd.DataFrame(unigrams_list, columns=['Unigram', 'Frequency'])
unigrams_df.to_csv('unigrams.csv', index=False) # For permanent analysis
unigrams_df.to_csv('unigrams_to_modify.csv', index=False) # For possible manual
filtering/editing

# Generate bigrams (2-word phrases) and export
bigrams_list, bigram_freqs = get_ngrams(text_blob, 2)
bigrams_df = pd.DataFrame(bigrams_list, columns=['Bigram', 'Frequency'])
bigrams_df.to_csv('bigrams.csv', index=False)
bigrams_df.to_csv('bigrams_to_modify.csv', index=False)

# Generate trigrams (3-word phrases) and export
trigrams_list, trigram_freqs = get_ngrams(text_blob, 3)
trigrams_df = pd.DataFrame(trigrams_list, columns=['Trigram', 'Frequency'])
trigrams_df.to_csv('trigrams.csv', index=False)

```

```

trigrams_df.to_csv('trigrams_to_modify.csv', index=False)

# Create and display word clouds for unigrams, bigrams, and trigrams
for freqs, title in zip([unigram_freqs, bigram_freqs, trigram_freqs], ["Unigram",
"Bigram", "Trigram"]):
    wordcloud = WordCloud(width=800, height=400,
background_color='white').generate_from_frequencies(freqs)
    plt.figure(figsize=(12, 6)) # Set figure size for better readability
    plt.imshow(wordcloud, interpolation='bilinear') # Render word cloud
    plt.axis('off') # Hide axis lines and ticks
    plt.title(f"Raw Word Cloud of {title}s") # Set the title of the word cloud
    plt.show() # Display the plot

# Explanation of the result
print("\n What this means:")
print("- It analyzes the cleaned text to extract:")
print(" • Unigrams (1-word phrases)")
print(" • Bigrams (2-word phrases)")
print(" • Trigrams (3-word phrases)")
print("- For each, it:")
print(" • Calculates their frequency in the text")
print(" • Saves them into CSV files (e.g., 'unigrams.csv', 'bigrams.csv')")
print(" • Also creates duplicate files for manual edits (e.g., 'bigrams_to_modify.csv')")
print("- It visualizes the most frequent phrases as word clouds for intuitive analysis.")
print("Use these outputs to detect key themes, patterns, or common messaging across
campaigns.")

# Unigram, Bigram, and Trigram Analysis with Word Clouds and Filtering

from wordcloud import WordCloud # Library to create word clouds from frequency
data
import matplotlib.pyplot as plt # Plotting library
from sklearn.feature_extraction.text import CountVectorizer # Extracts word/phrase
frequencies
import pandas as pd # Data handling

# Step 1: Load deleted-word lists to exclude weak or meaningless phrases
unigrams_deleted = pd.read_csv("unigrams_deleted.csv")
bigrams_deleted = pd.read_csv("bigrams_deleted.csv")
trigrams_deleted = pd.read_csv("trigrams_deleted.csv")

```

```

unigrams_to_remove = set(unigrams_deleted['Unigram'].str.lower())
bigrams_to_remove = set(bigrams_deleted['Bigram'].str.lower())
trigrams_to_remove = set(trigrams_deleted['Trigram'].str.lower())

# Step 2: Join all campaign cleaned text into one long string
text_blob = ''.join(df['Cleaned_Description'].fillna(" ").str.lower())

# Step 3: Define function to extract n-grams and filter out meaningless ones
def get_filtered_ngrams(text, n, removal_set):
    vectorizer = CountVectorizer(ngram_range=(n, n), token_pattern=r'\b[a-zA-Z][a-zA-Z]+\b')
    X = vectorizer.fit_transform([text])
    freqs = dict(zip(vectorizer.get_feature_names_out(), X.toarray()[0]))
    # Remove n-grams defined as unhelpful
    freqs = {ngram: freq for ngram, freq in freqs.items() if ngram.lower() not in
removal_set}
    sorted_freqs = sorted(freqs.items(), key=lambda x: x[1], reverse=True)
    return sorted_freqs, freqs

# Step 4: Extract and clean unigrams, bigrams, trigrams
unigrams_list, unigram_freqs = get_filtered_ngrams(text_blob, 1, unigrams_to_remove)
bigrams_list, bigram_freqs = get_filtered_ngrams(text_blob, 2, bigrams_to_remove)
trigrams_list, trigram_freqs = get_filtered_ngrams(text_blob, 3, trigrams_to_remove)

# Step 5: Save clean frequency tables to CSV
pd.DataFrame(unigrams_list, columns=['Unigram', 'Frequency']).to_csv('unigrams.csv',
index=False)
pd.DataFrame(unigrams_list, columns=['Unigram',
'Frequency']).to_csv('unigrams_to_modify.csv', index=False)

pd.DataFrame(bigrams_list, columns=['Bigram', 'Frequency']).to_csv('bigrams.csv',
index=False)
pd.DataFrame(bigrams_list, columns=['Bigram',
'Frequency']).to_csv('bigrams_to_modify.csv', index=False)

pd.DataFrame(trigrams_list, columns=['Trigram', 'Frequency']).to_csv('trigrams.csv',
index=False)
pd.DataFrame(trigrams_list, columns=['Trigram',
'Frequency']).to_csv('trigrams_to_modify.csv', index=False)

```

```

# Step 6: Generate and display word clouds for filtered n-grams
for freqs, title in zip([unigram_freqs, bigram_freqs, trigram_freqs], ["Unigram",
"Bigram", "Trigram"]):
    wordcloud = WordCloud(width=800, height=400,
background_color='white').generate_from_frequencies(freqs)
    plt.figure(figsize=(12, 6))
    plt.imshow(wordcloud, interpolation='bilinear')
    plt.axis('off')
    plt.title(f"Most Frequent Meaningful {title}s in Award-Winning Campaigns")
    plt.show()

# Step 7: Interpretation
print("\n What this means:")
print("- This analysis extracts the most common 1-word, 2-word, and 3-word phrases
from the campaign text.")
print("- Before analyzing, it filters out meaningless n-grams using custom deletion
lists:")
print("    • unigrams_deleted.csv, bigrams_deleted.csv, trigrams_deleted.csv")
print("- For each n-gram level, it:")
print("    • Calculates frequencies")
print("    • Saves clean results to CSV")
print("    • Generates a filtered word cloud showing the most relevant messaging")
print("- This helps identify recurring themes, emotional language, or strategic
messaging in campaign communication.")

# Co-occurrence-Aware Topic Modeling on Cleaned Descriptions

from sklearn.feature_extraction.text import CountVectorizer
from sklearn.decomposition import LatentDirichletAllocation
import matplotlib.pyplot as plt
import pandas as pd

# Step 1: Pre-filter the data to remove very short descriptions
df = df[df['Cleaned_Description'].apply(lambda x: isinstance(x, str) and len(x.split()) >=
5)]

# Step 2: Define a custom stopwords list to remove extra filler words
custom_stopwords = set([
    'thats', 'im', 'just', 'like', 'dont', 'didnt', 'youre', 'youve', 'youll',

```

```

    'ive', 'cant', 'couldnt', 'wouldnt', 'doesnt', 'wont', 'theyll', 'etc',
    'really', 'thing', 'things', 'stuff', 'make', 'makes'
)

# Step 3: Create a document-term matrix (DTM) with strong filtering
# - max_df=0.9: removes overly common words
# - min_df=2: removes rare words
# - token_pattern: filters out short words (less than 3 letters)
vectorizer = CountVectorizer(
    max_df=0.9,
    min_df=2,
    stop_words='english',
    token_pattern=r'\b[a-zA-Z]{3,}\b'
)
X = vectorizer.fit_transform(df['Cleaned_Description'])

# Step 4: Manually remove custom stopwords from the vocabulary
vocab = vectorizer.get_feature_names_out()
mask = [word not in custom_stopwords for word in vocab]
filtered_vocab = vocab[mask]
X = X[:, mask] # Keep only non-stopword columns in the DTM

# Step 5: Fit the LDA model to discover 5 latent topics
lda = LatentDirichletAllocation(n_components=5, random_state=42)
lda.fit(X)

# Step 6: Display and plot the top 10 words for each topic, and collect for export
topic_data = []

print("\n Top 10 Keywords per Topic from Cleaned Descriptions:")
for i, topic in enumerate(lda.components_):
    top_indices = topic.argsort()[-10:]
    top_words = [filtered_vocab[j] for j in top_indices]
    print(f"\nTopic {i+1}: {' '.join(top_words)}")

# Store for CSV export
topic_data.append(top_words)

# Plot horizontal bar chart
plt.figure(figsize=(8, 4))

```

```
plt.barh(top_words, topic[top_indices])
plt.title(f"Top Words in Topic {i+1}")
plt.xlabel("Word Importance (LDA Score)")
plt.tight_layout()
plt.show()
```

```
# Step 7: Export the top words per topic to a CSV file
topic_df = pd.DataFrame(topic_data).transpose()
topic_df.columns = [f"Topic {i+1}" for i in range(len(topic_data))]
topic_df.to_csv("lda_cleaned_description_topics.csv", index=False)
```

```
# Step 8: Clear interpretation for readers unfamiliar with topic modeling
print("\n What this means:")
print("- This analysis identifies hidden themes (called 'topics') from the text data using LDA, a common technique in text mining.")
print("- A 'topic' is defined by a group of words that tend to appear together across many documents.")
print("- For each of the 5 topics, the top 10 most important words are shown and plotted.")
print("- The words in a topic can help understand what that topic is about (e.g., a topic with 'plastic', 'waste', 'recycling' might relate to sustainability).")
print("- The bar charts visually show how important each word is in defining its topic.")
print("- This method helps explore large text datasets by grouping similar ideas based on how words co-occur in documents.")
print("- The results have also been saved in the file 'lda_cleaned_description_topics.csv' for easy reference.")
```

```
# Topic Modeling on Emotional Descriptions with Graphs and CSV Export
```

```
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.decomposition import LatentDirichletAllocation
import matplotlib.pyplot as plt
import pandas as pd
```

```
# Step 1: Convert Emotional Descriptions into a Document-Term Matrix (DTM)
# - CountVectorizer turns text into a bag-of-words matrix (rows = docs, columns = word counts)
# - max_df=0.9: ignores words that appear in more than 90% of documents (too common)
# - min_df=2: ignores words that appear in fewer than 2 documents (too rare)
```

```
# - stop_words='english': removes standard English filler words (e.g., "the", "and", "in")
vectorizer = CountVectorizer(max_df=0.9, min_df=2, stop_words='english')
X = vectorizer.fit_transform(df['Emotional_Description']) # Fit and transform the
emotional text data
```

```
# Step 2: Apply Latent Dirichlet Allocation (LDA) to extract 5 topics
# - n_components=5: number of topics to find
# - random_state=42: ensures reproducibility (same output every time)
lda = LatentDirichletAllocation(n_components=5, random_state=42)
lda.fit(X) # Train the LDA model on the document-term matrix
```

```
# Step 3: Display and plot the top 10 words for each discovered topic
feature_names = vectorizer.get_feature_names_out() # Get all vocabulary terms
topic_data = [] # Will hold the top 10 words for each topic (for CSV export)
```

```
print("\n Top 10 Keywords per Topic from Emotional Descriptions:")
```

```
for i, topic in enumerate(lda.components_):
```

```
    # For each topic, get indices of the 10 most important words
```

```
    top_indices = topic.argsort()[-10:]
```

```
    # Convert those indices into actual words from the vocabulary
```

```
    top_words = [feature_names[j] for j in top_indices]
```

```
    # Get their corresponding importance weights for plotting
```

```
    weights = topic[top_indices]
```

```
    # Print the topic keywords in the console
```

```
    print(f"\nTopic {i+1}: {' '.join(top_words)}")
```

```
    # Store this list of top words for later CSV export
```

```
    topic_data.append(top_words)
```

```
    # Create a horizontal bar chart showing word importance within this topic
```

```
    plt.figure(figsize=(8, 4))
```

```
    plt.barh(top_words, weights)
```

```
    plt.title(f"Top Words in Topic {i+1}")
```

```
    plt.xlabel("Word Importance (LDA Score)")
```

```
    plt.tight_layout()
```

```
    plt.show()
```

```

# Step 4: Export the list of top words per topic to a CSV file
# - Each column = one topic; each row = one of its top 10 words
topic_df = pd.DataFrame(topic_data).transpose() # Transpose to make topics into
columns
topic_df.columns = [f"Topic {i+1}" for i in range(len(topic_data))]
topic_df.to_csv("lda_emotional_description_topics.csv", index=False) # Save to file

# Step 5: Explain what this analysis does and how to read the results
print("\n What this means:")
print("- This topic modeling analysis is based on the 'Emotional_Description' column,
which focuses on emotionally expressive language.")
print("- The goal is to discover hidden emotional themes or persuasive tactics used
across campaigns.")
print("- Each topic is defined by the top 10 words that frequently appear together in
emotionally styled content.")
print("- The bar charts show how important each word is to each topic, helping to
visualize what emotional strategies may be dominant.")
print("- The results are saved in 'lda_emotional_description_topics.csv' for reference or
reuse.")

# Step 6: Justify why this separate emotional analysis is valuable
print("\n Why this is different from the Cleaned Description analysis:")
print("- While 'Cleaned_Description' reveals general themes across all campaign
content, 'Emotional_Description' isolates the emotional framing.")
print("- Emotional language plays a key role in persuasion, storytelling, and audience
engagement.")
print("- By separately analyzing emotional text, this model helps uncover how
campaigns leverage emotions like fear, hope, pride, or urgency.")
print("- Comparing the two sets of topics (Cleaned vs. Emotional) allows deeper insight
into both the strategic content and the emotional tone of award-winning campaigns.")

# Comprehensive Sentiment Analysis Using TextBlob, VADER, Afinn, and BERT

import pandas as pd
from textblob import TextBlob # Lexicon-based polarity and subjectivity analysis
from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer # Social
sentiment scoring
from afinn import Afinn # Simple numerical sentiment scoring
import seaborn as sns # Plotting style
import matplotlib.pyplot as plt # Visualization

```

```

from transformers import pipeline # HuggingFace BERT sentiment model
import torch # To check for GPU availability

# CLEANING STEP: Remove empty or duplicate rows
df = df.dropna(how='all').drop_duplicates()
print("After cleaning, total rows:", len(df))
print("Duplicates remaining:", df.duplicated().sum())

# Load BERT pipeline (fast if using GPU)
torch_device = "cuda" if torch.cuda.is_available() else "cpu"
bert_classifier = pipeline(
    "sentiment-analysis",
    model="distilbert-base-uncased-finetuned-sst-2-english",
    device=0 if torch_device == "cuda" else -1
)

# Initialize VADER and Afinn analyzers
vader = SentimentIntensityAnalyzer()
afinn = Afinn()

# --- TEXTBLOB ANALYSIS ---
df['TextBlob_Polarity'] = df['Cleaned_Description'].apply(lambda x:
TextBlob(x).sentiment.polarity)
df['TextBlob_Subjectivity'] = df['Cleaned_Description'].apply(lambda x:
TextBlob(x).sentiment.subjectivity)

# --- VADER ANALYSIS ---
df['VADER_Compound'] = df['Cleaned_Description'].apply(lambda x:
vader.polarity_scores(x)['compound'])

# --- AFINN ANALYSIS ---
df['Afinn_Score'] = df['Cleaned_Description'].apply(lambda x: afinn.score(x))

# --- BERT ANALYSIS ---
def get_bert_sentiment_with_confidence(text):
    if not text.strip():
        return {'label': 'NEUTRAL', 'score': 0.0}
    try:
        result = bert_classifier(text[:512])[0]

```

```

    return result
except:
    return {'label': 'ERROR', 'score': 0.0}

bert_results = df['Cleaned_Description'].apply(get_bert_sentiment_with_confidence)
df['BERT_Label'] = bert_results.apply(lambda x: x['label'])
df['BERT_Confidence'] = bert_results.apply(lambda x: x['score'])

# --- INDIVIDUAL DISTRIBUTION PLOTS ---
bins = 20 # Fixed bin count for consistency

# TextBlob
plt.figure(figsize=(10, 4))
sns.histplot(df['TextBlob_Polarity'], bins=bins, kde=True, color='skyblue', stat='count')
plt.title("TextBlob Polarity Distribution")
plt.xlabel("Polarity Score")
plt.ylabel("Frequency")
plt.show()

# VADER
plt.figure(figsize=(10, 4))
sns.histplot(df['VADER_Compound'], bins=bins, kde=True, color='lightgreen',
stat='count')
plt.title("VADER Compound Score Distribution")
plt.xlabel("Compound Score")
plt.ylabel("Frequency")
plt.show()

# AFINN
plt.figure(figsize=(10, 4))
sns.histplot(df['AFINN_Score'], bins=bins, kde=True, color='salmon', stat='count')
plt.title("AFINN Sentiment Score Distribution")
plt.xlabel("AFINN Score")
plt.ylabel("Frequency")
plt.show()

# BERT Confidence
plt.figure(figsize=(10, 4))
sns.histplot(df['BERT_Confidence'], bins=bins, kde=True, color='violet', stat='count')
plt.title("BERT Sentiment Confidence Distribution")

```

```

plt.xlabel("Confidence Score (0 to 1)")
plt.ylabel("Frequency")
plt.show()

# BERT Label Count
plt.figure(figsize=(6, 4))
sns.countplot(x='BERT_Label', data=df, palette='pastel')
plt.title("BERT Sentiment Classification")
plt.xlabel("Sentiment Label")
plt.ylabel("Number of Descriptions")
plt.show()

# --- COMBINED COMPARISON PLOT (NORMALIZED INCLUDING BERT) ---
# BERT score: confidence becomes negative if label is NEGATIVE
comparison_df = pd.DataFrame({
    'TextBlob': df['TextBlob_Polarity'],
    'VADER': df['VADER_Compound'],
    'Afinn': df['Afinn_Score'] / df['Afinn_Score'].abs().max(),
    'BERT': df['BERT_Confidence'] * (2 * (df['BERT_Label'] == 'POSITIVE') - 1)
})

melted_comparison = comparison_df.melt(var_name='Tool', value_name='Score')

plt.figure(figsize=(12, 6))
sns.violinplot(x='Tool', y='Score', data=melted_comparison, palette='Set2')
plt.title("Sentiment Score Comparison Across Tools (Normalized)")
plt.xlabel("Sentiment Analysis Tool")
plt.ylabel("Normalized Sentiment Score")
plt.axhline(0, color='gray', linestyle='--')
plt.show()

# --- EXPORT TO CSV ---
df.to_csv("Sentiment_Analysis_Results.csv", index=False)
print("Sentiment scores saved to: Sentiment_Analysis_Results.csv")

# Explanation of the result
print("\n What this means:")
print("This step uses four different tools to assess the emotional tone of marketing
campaign descriptions:")

```

```

print("\n1. TextBlob:")
print(" - Measures Polarity (positive/negative tone) and Subjectivity (opinionated or
factual).")
print(" - Polarity ranges from -1 (negative) to +1 (positive).")
print(" - Subjectivity ranges from 0 (objective, factual) to 1 (subjective, emotional or
persuasive).")

print("\n2. VADER (Valence Aware Dictionary for Sentiment Reasoning):")
print(" - Especially good for short texts and social media. Detects nuanced phrases like
'not good'.")
print(" - Provides a compound score from -1 (very negative) to +1 (very positive).")

print("\n3. Afinn:")
print(" - Assigns words a numeric sentiment score. Sums these to give an overall score
per description.")
print(" - A higher score suggests more positive language, while a lower (negative)
score suggests negativity.")

print("\n4. BERT (Bidirectional Encoder Representations from Transformers):")
print(" - A deep learning model that interprets full sentence context before
classifying.")
print(" - Labels each text as either POSITIVE or NEGATIVE and assigns a confidence
score (like 0.91).")
print(" - For comparison, POSITIVE scores are treated as +confidence, NEGATIVE as -
confidence.")

print("\nVisualization Summary:")
print("- Each tool's score distribution is plotted in a 'violin plot' showing spread, shape,
and center.")
print("- This helps compare how consistently tools classify the same campaigns.")
print("- Seeing agreement across tools gives more confidence in emotional insights from
the campaign texts.")

# Emotion Analysis using NRC Lexicon (No TextBlob, No NRCLex)

from collections import defaultdict, Counter
import pandas as pd
import matplotlib.pyplot as plt

# >>> NEW: only the 8 basic emotions

```

```
emotions_8 = ['anger', 'anticipation', 'disgust', 'fear', 'joy', 'sadness', 'surprise', 'trust']
# <<<<
```

```
# Step 1: Load the NRC Emotion Lexicon file into a dictionary
# - The file has rows formatted as: word<TAB>emotion<TAB>score (0 or 1)
# - Only emotions with score=1 are stored
# - Each word maps to one or more emotions (stored as a set)
emotion_dict = defaultdict(set)
```

```
with open("NRC-Emotion-Lexicon-Wordlevel-v0.92.txt", "r") as f:
    for line in f:
        word, emotion, score = line.strip().split("\t")
        # >>> NEW: accept only the 8 emotions (drop 'positive'/'negative')
        if int(score) == 1 and emotion in emotions_8:
            emotion_dict[word].add(emotion)
        # <<<<
```

```
# Step 2: Define a function to compute emotion scores for a single text string
# - Splits text into words and accumulates emotion counts for matching words
def get_emotion_scores(text):
    if pd.isna(text):
        return {}
    emotion_counter = Counter()
    for word in text.split():
        emotions = emotion_dict.get(word, [])
        emotion_counter.update(emotions)
    return dict(emotion_counter)
```

```
# Step 3: Apply emotion scoring to each cleaned description in the dataset
# - A new column 'Emotion_Scores' is created containing a dictionary per row
df['Emotion_Scores'] = df['Cleaned_Description'].apply(get_emotion_scores)
```

```
# Step 4: Aggregate all emotion scores from all descriptions into a single counter
# - Merges all dictionaries into a single total frequency counter
total_emotions = Counter()
df['Emotion_Scores'].dropna().apply(lambda d: total_emotions.update(d))
```

```
# Step 5: Export individual emotion scores to a CSV
# - Converts dictionaries into string format for readable output
df_export = df[['Cleaned_Description', 'Emotion_Scores']].copy()
```

```
df_export['Emotion_Scores'] = df_export['Emotion_Scores'].apply(lambda x: dict(x))
df_export.to_csv("emotion_scores.csv", index=False)
```

```
# Step 6: Plot the overall emotion distribution as a bar chart
plt.figure(figsize=(10, 5))
# >>> NEW: plot in fixed 8-emotion order (prevents polarity from ever appearing)
plt.bar(emotions_8, [total_emotions.get(e, 0) for e in emotions_8])
# <<<
plt.title("Emotion Distribution in Campaign Descriptions")
plt.ylabel("Frequency")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```

```
# Step 7: Display a preview of the dataset with emotion annotations
print("\n Preview of Emotion Scores per Document:")
print(df_export.head())
```

```
# Step 8: Interpretation of emotion analysis output
print("\n What this means:")
print("- The file 'emotion_scores.csv' contains the detected emotional tones in each
campaign description.")
print("- Each entry in the 'Emotion_Scores' column is a dictionary showing which
emotions were triggered and how many words contributed to each.")
print("- The bar chart shows the overall distribution of emotions across all campaign
descriptions.")
print("- Emotions like 'joy', 'fear', 'trust', etc., help understand the affective tone used in
marketing language.")
print("- These results are useful for examining how emotional appeals are strategically
used to influence behavior or engagement.")
```

```
# Emotion Distribution by Award Category with Heatmap, CSV Export, and
Explanation
```

```
import ast
from collections import Counter, defaultdict
import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd
```

```

# >>> NEW: restrict to the 8 basic emotions
emotions_8 = ['anger', 'anticipation', 'disgust', 'fear', 'joy', 'sadness', 'surprise', 'trust']
# <<<

# Step 1: Initialize a nested dictionary to count emotions per award category
# - Outer keys = Award category labels (e.g., 'Gold', 'Silver')
# - Inner values = Counter of emotions (e.g., {'joy': 12, 'fear': 3})
emotion_by_cat = defaultdict(Counter)

# Step 2: Loop over each row in the DataFrame to populate emotion counts by category
# - Checks that 'Emotion_Scores' is a dictionary (some may be strings after
saving/loading)
# - Increments the emotion count for each emotion under the appropriate award
category
for _, row in df.iterrows():
    emotions = row['Emotion_Scores'] if isinstance(row['Emotion_Scores'], dict) else {}
    for emotion, count in emotions.items():
        # >>> NEW: ignore polarity; keep only the 8 emotions
        if emotion in emotions_8:
            emotion_by_cat[row['Awards']][emotion] += count
    # <<<

# Step 3: Convert the nested dictionary into a structured DataFrame
# - Rows = Emotions, Columns = Award categories, Values = Emotion frequency
emotion_cat_df = pd.DataFrame(emotion_by_cat).fillna(0)
# >>> NEW: ensure rows are exactly the 8 emotions in a fixed order
emotion_cat_df = emotion_cat_df.reindex(index=emotions_8, fill_value=0)
# <<<

# Step 4: Export the DataFrame to a CSV file for inspection or reporting
emotion_cat_df.to_csv("emotion_distribution_by_award.csv")

# Step 5: Create a heatmap to visualize the frequency of each emotion by award
category
plt.figure(figsize=(12, 6))
sns.heatmap(emotion_cat_df, annot=True, cmap="YlGnBu", fmt=".0f", linewidths=0.5)
plt.title("Emotion Distribution by Award Category")
plt.xlabel("Award Category")
plt.ylabel("Emotion")
plt.tight_layout()

```

```
plt.show()
```

```
# Step 6: Print the top few rows of the pivot table for reference
print("\n Preview of Emotion Distribution Table (Top Rows):")
print(emotion_cat_df.head())
```

```
# Step 7: Interpretation of the heatmap and table
print("\n What this means:")
print("- The file 'emotion_distribution_by_award.csv' contains the count of each
emotion grouped by award category.")
print("- The heatmap visually compares how often each emotion appears in descriptions
associated with different award types.")
print("- Higher numbers or darker shades indicate more frequent emotional language of
that type within a given award class.")
print("- This can help identify whether more emotional language (e.g., 'joy', 'fear', 'trust')
is associated with higher or lower awards.")
print("- Ensure the 'Awards' column is clean and correctly categorized to reflect
meaningful grouping.")
```

```
# Identify the Dominant Emotion per Campaign and Export Results
```

```
import pandas as pd
```

```
# Step 1: Ensure each entry in 'Emotion_Scores' is a dictionary
# - Some may be strings (e.g., after CSV reload); this step standardizes the format
# - If not a dictionary, replace with an empty dict
df['Parsed_Emotion_Scores'] = df['Emotion_Scores'].apply(lambda x: x if isinstance(x,
dict) else {})
```

```
# Step 2: Determine the dominant (most frequent) emotion per campaign
# - For each row, extract the emotion with the highest count from the dictionary
# - If the dictionary is empty, return None
df['Dominant_Emotion'] = df['Parsed_Emotion_Scores'].apply(
    lambda d: max(d.items(), key=lambda x: x[1])[0] if d else None
)
```

```
# Step 3: Export the dominant emotion per campaign to a CSV
df[['EntryName', 'Dominant_Emotion']].to_csv("dominant_emotion_per_campaign.csv",
index=False)
```

```

# Step 4: Display a preview of the new column alongside campaign titles
print("\n Preview of Dominant Emotion per Campaign:")
print(df[['EntryName', 'Dominant_Emotion']].head())

# Step 5: Explain the results and their value
print("\n What this means:")
print("- The file 'dominant_emotion_per_campaign.csv' contains the most prominent
emotional tone identified in each campaign description.")
print("- 'Dominant_Emotion' represents the emotion category with the highest word
count based on the NRC Lexicon.")
print("- This simplifies the multi-emotion profile into a single label for easier
classification, comparison, or visualization.")
print("- Useful for identifying emotional strategies in award-winning campaigns and
analyzing trends by emotion.")
print("- Ensure campaign descriptions in 'Cleaned_Description' are accurate and
properly tokenized for valid results.")

```

```

# Build a brand-new base document and plot: Polarity vs NRC "Positive" count
# - Non-destructive: does NOT alter existing df or downstream cells
# - Outputs: base_sentiment_valence.csv
# - Produces a matplotlib scatter plot

```

```

import pandas as pd
import re, ast
from collections import defaultdict, Counter
import matplotlib.pyplot as plt

```

```

# ----- Config -----
TEXT_COL_CANDIDATES = ["Cleaned_Description", "Description", "Text", "content",
"body"]
ID_COL_CANDIDATES = ["ID", "Id", "Campaign_ID", "DocID", "doc_id", "uid"]

```

```

def _pick_col(frame, candidates):
    for c in candidates:
        if c in frame.columns:
            return c
    return None

```

```

def _tokenize(s):
    if not isinstance(s, str):

```

```

    return []
    return re.findall(r"\b[\w']+\b", s.lower())

# ----- Try to get polarity -----
def _get_polarity_series(frame):
    # 1) Prefer existing polarity columns if already computed
    if "Polarity" in frame.columns:
        return pd.to_numeric(frame["Polarity"], errors="coerce")
    if "TextBlob_Polarity" in frame.columns:
        return pd.to_numeric(frame["TextBlob_Polarity"], errors="coerce")
    # 2) Otherwise compute polarity with TextBlob if available
    try:
        from textblob import TextBlob
        text_col = _pick_col(frame, TEXT_COL_CANDIDATES)
        if text_col is None:
            return pd.Series([None]*len(frame), index=frame.index, dtype="float")
            return frame[text_col].apply(lambda x: TextBlob(x).sentiment.polarity if
instance(x, str) else None)
        except Exception:
            # 3) If TextBlob isn't available, return NaNs
            return pd.Series([None]*len(frame), index=frame.index, dtype="float")

# ----- Build an NRC "positive" lexicon -----
def _lexicon_from_df(lex_df):
    """Convert a typical NRC df to word->set(labels)."""
    cols = {c.lower(): c for c in lex_df.columns}
    word_col = cols.get("word", cols.get("term"))
    emo_col = cols.get("emotion", cols.get("affect"))
    assoc = cols.get("association", cols.get("value"))
    if not (word_col and emo_col):
        return {}
    dfx = lex_df.copy()
    if assoc:
        try:
            dfx = dfx[dfx[assoc] > 0]
        except Exception:
            pass
    dfx[word_col] = dfx[word_col].astype(str).str.lower()
    lex = defaultdict(set)
    for w, e in zip(dfx[word_col], dfx[emo_col]):

```

```

    if isinstance(e, str) and e.lower() == "positive":
        lex[w].add("positive")
    return lex

def _build_positive_set():
    # 1) If already defined a set
    if "nrc_positive_set" in globals() and isinstance(globals()["nrc_positive_set"], set) and
    globals()["nrc_positive_set"]:
        return set(w.lower() for w in globals()["nrc_positive_set"])

    # 2) If already has an NRC DataFrame
    for name in ("nrc_lexicon", "nrc_df", "NRC_LEXICON"):
        if name in globals():
            obj = globals()[name]
            if isinstance(obj, pd.DataFrame):
                m = _lexicon_from_df(obj)
                if m:
                    return set(m.keys())

    # 3) Try NRCLex if installed
    try:
        from nrcllex import NRCLex
        pos_words = {w for w, feats in NRCLex.lexicon.items() if feats.get("positive")}
        if pos_words:
            return set(w.lower() for w in pos_words)
    except Exception:
        pass

    # 4) Fallback mini positive set to avoid all-zeros (can be replaced later)
    return set("""
    good great excellent amazing love loved loving positive benefit beneficial
    success successful happy joy joyful trust inspire inspiring sustainable
    green eco-friendly efficient improvement improved best wonderful progress
    encourage encouraged empowerment delightful vibrant thrive thriving
    """).split())

def _count_positive_in_text(text, positive_set):
    toks = _tokenize(text)
    return sum(1 for t in toks if t in positive_set)

```

```

# ----- Build the brand-new base table -----
if 'df' not in globals() or not isinstance(df, pd.DataFrame):
    raise RuntimeError("I can't find your main DataFrame 'df'. Make sure it exists in the
notebook.")

text_col = _pick_col(df, TEXT_COL_CANDIDATES)
if text_col is None:
    raise ValueError(f"No text column found in df. Tried: {TEXT_COL_CANDIDATES}")

id_col = _pick_col(df, ID_COL_CANDIDATES)

# Compute polarity (non-destructive)
polarity = _get_polarity_series(df)

# Build positive word set
positive_set = _build_positive_set()

# Assemble base_df
base_df = pd.DataFrame(index=df.index)
base_df["Base_ID"] = df[id_col] if id_col else df.index
base_df["Base_Text"] = df[text_col].astype(str)
base_df["Polarity"] = pd.to_numeric(polarity, errors="coerce")

# Count NRC "positive" per row using the positive_set
base_df["NRC_Positive_Count"] = base_df["Base_Text"].apply(lambda s:
_count_positive_in_text(s, positive_set))

# Clean for plotting (drop NaNs)
plot_df = base_df.dropna(subset=["Polarity"]).copy()

# Save the brand-new base document
out_path = "base_sentiment_valence.csv"
base_df.to_csv(out_path, index=False, encoding="utf-8")
print(f"Wrote {out_path} with columns: {list(base_df.columns)}")
print(base_df.head(5).to_string(index=False))
print("\n What this means:")
print("- This scatter plot compares TextBlob's calculated sentiment polarity with the
number of 'positive' words detected using the NRC Emotion Lexicon.")
print("- TextBlob Polarity values range from -1 (very negative) to +1 (very positive).")

```

```

print("- The y-axis reflects how many times words labeled as 'positive' in the NRC
lexicon appear in each campaign's description.")
print("- A positive correlation would suggest that both methods agree (i.e., more
'positive' words lead to higher polarity scores).")
print("- Discrepancies may arise due to the different logic used: TextBlob uses
grammatical context, while NRC is lexicon-based and count-driven.")
print("- Useful for validating sentiment tools or for triangulating emotional tone.")

# ----- Plot with matplotlib (no seaborn) -----
if len(plot_df) == 0:
    print("No rows with valid Polarity to plot. Check polarity computation/TextBlob
install.")
else:
    plt.figure()
    plt.scatter(plot_df["Polarity"], plot_df["NRC_Positive_Count"])
    plt.title("Polarity vs NRC 'Positive' Word Count")
    plt.xlabel("TextBlob Polarity Score")
    plt.ylabel("Number of 'Positive' Words (NRC)")
    plt.tight_layout()
    plt.show()

# Diagnostics to help if it's still flat:
total_pos = int(base_df["NRC_Positive_Count"].sum())
nonzero_rows = int((base_df["NRC_Positive_Count"] > 0).sum())
print(f"[Info] Total 'positive' tokens: {total_pos}")
print(f"[Info] Rows with ≥1 'positive' token: {nonzero_rows} / {len(base_df)}")
if total_pos == 0:
    print("[Hint] We used a fallback mini-lexicon. To improve counts, expose a full NRC
lexicon as either:")
    print(" • a DataFrame named nrc_lexicon / nrc_df with columns like [word|term,
emotion, association|value]")
    print(" • NRCLex installed (pip install nrcllex)")
    print(" • or define: nrc_positive_set = {...} # set of words")

# Most Common Words by Award Category (Lexical Frequency Analysis)

from collections import defaultdict, Counter
import pandas as pd

# Step 1: Create a nested dictionary to hold words grouped by award category

```

```

# - Keys: Award categories (e.g., 'Gold', 'Silver')
# - Values: List of all words used in that category's descriptions
cat_words = defaultdict(list)

# Step 2: Loop through each row of the DataFrame
# - Collects words from 'Emotional_Description' for each award type
for _, row in df.iterrows():
    # Check that both Emotional_Description and Awards columns contain valid data
    if pd.notna(row.get('Emotional_Description')) and pd.notna(row.get('Awards')):
        # Tokenize the Emotional_Description into individual words
        words = str(row['Emotional_Description']).split()
        # Append the words to the appropriate award category
        cat_words[row['Awards']].extend(words)

# Step 3: Compute and display the top 5 most frequently-used words per award
category
print("\n Top 5 Most Common Words by Award Category:")
common_words_output = []
for cat, words in cat_words.items():
    common = Counter(words).most_common(5)
    keywords = [word for word, _ in common]
    print(f"{str(cat)[:30]}: {keywords}")
    common_words_output.append({'Award_Category': cat, 'Top_5_Words': ",
".join(keywords)})

# Step 4 (Optional): Export the top words per category to a CSV for documentation or
external analysis
common_words_df = pd.DataFrame(common_words_output)
common_words_df.to_csv("common_words_by_award.csv", index=False)

# Step 5: Interpret the results for insight
print("\n What this means:")
print("- This analysis highlights which words are most frequently used in emotionally
charged campaign descriptions, grouped by award.")
print("- The results may reveal common narrative strategies or language patterns used
to appeal to judges.")
print("- The output has also been saved to 'common_words_by_award.csv' for further
review or visualization.")

# Emotional Density Analysis with Histogram and CSV Export

```

```

import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd

# Step 1: Compute Emotional Density for each campaign
# - Emotional Density = (Number of words in Emotional_Description) / (Number of
words in Cleaned_Description)
# - Measures how emotionally charged a campaign description is
# - Applies only when Cleaned_Description is a valid, non-empty string
df['Emotional_Density'] = df.apply(
    lambda row: len(row['Emotional_Description'].split()) /
len(row['Cleaned_Description'].split())
    if isinstance(row['Cleaned_Description'], str) and
len(row['Cleaned_Description'].split()) > 0 else 0,
    axis=1
)

# Step 2: Plot the distribution of Emotional Density
# - Histogram shows how emotionally dense the campaigns are
# - KDE curve highlights overall trends
sns.histplot(df['Emotional_Density'], kde=True, color='coral')
plt.title("Emotional Density Across Campaigns")
plt.xlabel("Emotional Density Score")
plt.ylabel("Number of Campaigns")
plt.tight_layout()
plt.show()

# Step 3: Preview the scores
print("\n Preview of Emotional Density Scores:")
print(df[['EntryName', 'Emotional_Density']].head())

# Step 4: Export the Emotional Density scores to CSV
df[['EntryName', 'Cleaned_Description', 'Emotional_Description',
'Emotional_Density']].to_csv("emotional_density_scores.csv", index=False)

# Step 5: Interpretation of the results
print("\n What this means:")
print("- The file 'emotional_density_scores.csv' contains each campaign's cleaned and
emotionalized text with the computed emotional density score.")

```

```

print("- Emotional Density indicates how saturated a text is with emotional language.")
print("- A value near 1 means almost every word is emotional; a lower value suggests
sparse emotional content.")
print("- This metric can help explore whether award-winning campaigns rely more on
emotional appeals.")

```

```

# Emotion Trends Over Time (Separate Raw and Normalized Plots + CSVs)

```

```

from collections import defaultdict, Counter
import pandas as pd
import matplotlib.pyplot as plt

```

```

# >>> NEW: restrict to the 8 basic emotions
emotions_8 = ['anger', 'anticipation', 'disgust', 'fear', 'joy', 'sadness', 'surprise', 'trust']
# <<<

```

```

# Step 1: Initialize data containers
year_emotions = defaultdict(Counter) # Stores raw emotion counts per year
campaigns_per_year = Counter() # Stores number of campaigns per year

```

```

# Step 2: Accumulate emotion scores by year from each campaign
for _, row in df.iterrows():
    year = row['Year']
    emotions = row['Parsed_Emotion_Scores']
    if pd.notna(year) and isinstance(emotions, dict):
        # >>> NEW: update only with the 8 emotions (ignore polarity)
        filtered = {e: emotions.get(e, 0) for e in emotions_8 if emotions.get(e, 0)}
        year_emotions[year].update(filtered)
        # <<<
        campaigns_per_year[year] += 1

```

```

# Step 3: Convert raw counts to DataFrame and sort by year
emotion_counts_df = pd.DataFrame(year_emotions).fillna(0).T.sort_index()
# >>> NEW: ensure columns are exactly the 8 emotions in a fixed order
emotion_counts_df = emotion_counts_df.reindex(columns=emotions_8, fill_value=0)
# <<<

```

```

# Step 4: Normalize counts by number of campaigns per year
normalized_df = emotion_counts_df.div(pd.Series(campaigns_per_year), axis=0)
# >>> NEW: (redundant but safe) keep the same column order

```

```

normalized_df = normalized_df.reindex(columns=emotions_8, fill_value=0)
# <<<

# Step 5: Export both datasets to CSV
emotion_counts_df.to_csv("raw_emotion_trends_by_year.csv")
normalized_df.to_csv("normalized_emotion_trends_by_year.csv")

# Step 6: Plot Raw Emotion Frequencies Over Years
emotion_counts_df[emotions_8].plot(title='Raw Emotion Frequencies Over Years')
plt.xlabel("Year")
plt.ylabel("Total Emotion Word Count")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()

# Step 7: Plot Normalized Emotion Frequencies Over Years
normalized_df[emotions_8].plot(title='Normalized Emotion Frequencies Over Years
(Per Campaign)')
plt.xlabel("Year")
plt.ylabel("Average Emotion Frequency per Campaign")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()

# Step 8: Preview the data
print("\n Preview of Raw Emotion Trends:")
print(emotion_counts_df.head())

print("\n Preview of Normalized Emotion Trends:")
print(normalized_df.head())

# Interpretation of Emotion Trend Analysis:

print("\n What this means:")

print("- Two CSV files have been generated:")
print(" • 'raw_emotion_trends_by_year.csv': Shows the total number of emotion-
related words found in all campaign descriptions for each year.")

```

```
print(" • 'normalized_emotion_trends_by_year.csv': Shows the average number of emotion-related words per campaign in each year. This is done by dividing the total emotion count by the number of campaigns in that year.")
```

```
print("\n The first graph (Raw Emotion Frequencies Over Years):")
```

```
print("- This graph shows the total volume of emotional language used across all campaigns each year.")
```

```
print("- Years with more campaigns will naturally have higher totals, even if individual campaigns aren't especially emotional.")
```

```
print("\n The second graph (Normalized Emotion Frequencies Over Years):")
```

```
print("- This graph adjusts for the number of campaigns, showing how emotionally expressive the average campaign was each year.")
```

```
print("- It allows for a fair comparison across years — even if some years had more or fewer campaigns.")
```

```
print("- For example, if 2021 had fewer campaigns but a high normalized score for 'joy', it suggests that individual campaigns in that year were more joyful on average.")
```

```
print("\n In summary:")
```

```
print("- The raw graph helps understand overall emotion trends in the dataset.")
```

```
print("- The normalized graph helps compare emotional intensity per campaign, which is more reliable when the number of campaigns per year varies.")
```

```
# Emotion Clustering with KMeans: Full Version with Profiles, Crosstab, and Exports
```

```
from sklearn.cluster import KMeans
```

```
import pandas as pd
```

```
import seaborn as sns
```

```
import matplotlib.pyplot as plt
```

```
# Step 1: Create a matrix from Parsed_Emotion_Scores
```

```
# - Each row represents a campaign description
```

```
# - Each column is an emotion (e.g., joy, fear, trust)
```

```
# - Missing values (e.g., if a campaign had no 'anger') are filled with 0
```

```
emotion_matrix = pd.DataFrame(df['Parsed_Emotion_Scores'].tolist()).fillna(0)
```

```
# >>> NEW: keep only the 8 basic emotions (drop polarity columns if present)
```

```
emotions_8 = ['anger', 'anticipation', 'disgust', 'fear', 'joy', 'sadness', 'surprise', 'trust']
```

```
emotion_matrix = emotion_matrix.reindex(columns=emotions_8, fill_value=0)
```

```
# <<<
```

```

# Step 2: Apply KMeans clustering to group descriptions by emotional similarity
# - n_clusters=3: We ask KMeans to find 3 emotional clusters
# - Each row is assigned a cluster label (0, 1, or 2)
kmeans = KMeans(n_clusters=3, random_state=42)
df['Emotion_Cluster'] = kmeans.fit_predict(emotion_matrix)

# >>> NEW: create display labels (1-3 instead of 0-2)
df['Emotion_Cluster_Display'] = df['Emotion_Cluster'] + 1
# <<<

# Step 3: Assign a dominant emotion cluster to each campaign (EntryName)
# - Some campaigns might have multiple entries (rows)
# - This assigns each campaign to the most frequent cluster across its rows
campaign_clusters = (
    df.groupby('EntryName')['Emotion_Cluster_Display']
      .agg(lambda x: x.value_counts().idxmax()) # Most common cluster
      .reset_index()
)

# Step 4: Visualize how many unique campaigns fall into each cluster
sns.countplot(x='Emotion_Cluster_Display', data=campaign_clusters)
plt.title("Unique Campaign Count per Emotion Cluster")
plt.xlabel("Emotion Cluster")
plt.ylabel("Number of Campaigns")
plt.tight_layout()
plt.show()

# Step 5: Export the cluster assignment per campaign to a CSV file
campaign_clusters.to_csv("campaigns_by_emotion_cluster.csv", index=False)

# Step 6: Analyze emotion cluster centers (average emotion values per cluster)
# - This helps explain what each cluster "feels like" in terms of emotional tone
# >>> NEW: ensure centers use the same 8-emotion columns, labeled 1-3
cluster_centers = pd.DataFrame(kmeans.cluster_centers_, columns=emotions_8)
cluster_centers.index = [f"Cluster {i}" for i in range(1, kmeans.n_clusters + 1)]
# <<<

# Step 7: Plot average emotion scores per cluster
# - Each bar group = an emotion

```

```

# - Each color = one of the clusters
# >>> NEW: plot specifically the 8 emotions
cluster_centers[emotions_8].T.plot(kind='bar', figsize=(12, 6))
plt.title("Average Emotion Profile by Cluster")
plt.ylabel("Average Emotion Score")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
# <<<

# Step 8: Generate a cross-tab showing which campaigns had rows in which clusters
# - This shows detailed breakdown, not just the dominant cluster
cluster_crosstab = pd.crosstab(df['EntryName'], df['Emotion_Cluster_Display'])

# Step 9: Export the crosstab for external review
cluster_crosstab.to_csv('emotion_cluster_by_entryname.csv', index=True)

# Step 10: Summary of data shape and cluster assignment frequency
print(" df shape:", df.shape)
print(" Unique campaigns (EntryName):", df['EntryName'].nunique())
print("\n Description rows per emotion cluster (across all rows):")
print(df['Emotion_Cluster_Display'].value_counts())

# Step 11: Interpretation
print("\n What this means:")
print("- KMeans was used to group campaign descriptions into 3 clusters based on their emotional tone.")
print("- Each campaign is assigned to a dominant cluster based on its most common emotional pattern.")
print("- Some campaigns may use similar emotional storytelling even if their topics are different.")
print("- Clustering helps uncover emotion-based patterns that are hard to see with only text or topics.")
print("- The cluster center chart shows which emotions dominate each cluster (e.g., trust-heavy, anger-heavy).")
print("- The crosstab shows a detailed mapping between each campaign and emotion clusters found in its content.")
print("- This is useful for emotional segmentation: grouping campaigns not by topic or theme, but by emotional impact.")

```

```

print("- Results have been saved to 'campaigns_by_emotion_cluster.csv' and
'emotion_cluster_by_entryname.csv'.")

# Subject Extraction from Video Transcripts with Exclusion Filtering

# Ensure spaCy is available (auto-install if missing)
try:
    import spacy # NLP toolkit for dependency parsing
except ModuleNotFoundError:
    import sys, subprocess
    subprocess.check_call([sys.executable, "-m", "pip", "install", "spacy"])
    import spacy

import pandas as pd
from collections import Counter
import matplotlib.pyplot as plt

# Step 1: Load spaCy's small English model for English parsing
try:
    nlp = spacy.load("en_core_web_sm")
except OSError:
    # Auto-download the small English model if it's not present
    from spacy.cli import download
    download("en_core_web_sm")
    nlp = spacy.load("en_core_web_sm")

# Step 2: Define function to extract nominal subjects (grammatical doers of action)
def extract_subjects(text):
    text = "" if pd.isna(text) else str(text) # guard against NaN / non-strings
    doc = nlp(text)
    return [tok.text.lower() for tok in doc if tok.dep_ == 'nsubj']

# Step 3: Apply subject extraction on the 'Cleaned_Description' column
# - Ensure missing text is filled with empty strings
df['Subjects'] =
df['Cleaned_Description'].fillna("").astype(str).apply(extract_subjects) # cast to str

# Step 4: Flatten list of subjects across all campaign rows
all_subjects = [subject for sublist in df['Subjects'] for subject in sublist]

```

```

# Step 5: Count how many times each subject appears
subject_counts = Counter(all_subjects)

# Step 6: Remove unwanted or meaningless subjects from the counts
excluded_subjects = set([
    'u', 'product', 'change', 'something',
    'life', 'environment', 'water', 'help', 'thing', 'that'
])
filtered_counts = {subject: count for subject, count in subject_counts.items() if subject not
in excluded_subjects}

# Step 7: Convert filtered subject counts into a DataFrame
subject_df = pd.DataFrame(filtered_counts.items(), columns=['Subject', 'Count'])

# Step 8: Save the filtered results to CSV
subject_df.to_csv("subject_frequency_filtered.csv", index=False)

# Step 9: Visualize the top 10 most common (filtered) subjects
subject_df.set_index('Subject') \
    .sort_values('Count', ascending=False) \
    .head(10) \
    .plot(kind='bar', title='Top Subjects in Campaign Transcripts (Filtered)', legend=False)

plt.tight_layout()
plt.savefig("subject_frequency_filtered.png")
plt.show()

# Step 10: Interpretation for beginners
print("\n What this means:")
print("- This analysis uses spaCy to extract the grammatical subject ('nsubj') from each
campaign sentence.")
print("- Subjects are typically the agent performing an action, such as 'we', 'you',
'company', etc.")
print("- The analysis automatically removes unhelpful or vague subjects (like 'thing', 'u',
'product') using a custom exclusion list.")
print("- A bar chart shows the most frequent remaining subjects to help identify how
campaigns frame their narrative.")
print("- The results are saved as:")
print("    • 'subject_frequency_filtered.csv' (for spreadsheet analysis)")
print("    • 'subject_frequency_filtered.png' (for presentations or visual inspection)")

```

```

# Keyword Extraction using TF-IDF with CSV Export, Visualization, Preview, and
Interpretation

# Import necessary libraries
from sklearn.feature_extraction.text import TfidfVectorizer
import pandas as pd
import matplotlib.pyplot as plt

# Step 1: Initialize the TF-IDF Vectorizer
# - stop_words='english': Removes common English words that are not meaningful
# - max_features=10: Restricts the vocabulary to the 10 most important words by TF-IDF
weight
tfidf = TfidfVectorizer(stop_words='english', max_features=10)

# Step 2: Apply TF-IDF transformation to cleaned text
# - Converts the text into a matrix where each value represents the TF-IDF score of a
term in a document
X_tfidf = tfidf.fit_transform(df['Cleaned_Description'])

# Step 3: Extract top keywords for each document (based on non-zero TF-IDF scores)
# - For each document (row), retrieve the index of non-zero keywords and convert them
back to words
df['Top_Keywords'] = [
    ", ".join([tfidf.get_feature_names_out()[i] for i in row.nonzero()[1]])
    for row in X_tfidf
]

# Step 4: Export the results (cleaned description + top keywords) to a CSV file
df[['Cleaned_Description', 'Top_Keywords']].to_csv("tfidf_keywords.csv", index=False)

# Step 5: Compute the average TF-IDF score for each keyword across all documents
average_tfidf_scores = X_tfidf.mean(axis=0).A1 # Convert from sparse matrix to flat
array
keywords = tfidf.get_feature_names_out()

# Step 6: Create a DataFrame for keyword importance and sort it for plotting
keyword_scores_df = pd.DataFrame({
    'Keyword': keywords,
    'Average_TFIDF': average_tfidf_scores
})

```

```

}).sort_values(by='Average_TFIDF', ascending=True)

# Step 7: Plot the average TF-IDF scores of the top 10 keywords
plt.figure(figsize=(8, 5))
plt.barh(keyword_scores_df['Keyword'], keyword_scores_df['Average_TFIDF'])
plt.title("Top 10 Keywords by Average TF-IDF Score")
plt.xlabel("Average TF-IDF Score")
plt.tight_layout()
plt.show()

# Step 8: Preview the top rows of the keyword extraction results
print("\n Preview of extracted keywords per document:")
print(df[['Cleaned_Description', 'Top_Keywords']].head())

# Step 9: Interpret the results
print("\n What this means:")
print("- The CSV file 'tfidf_keywords.csv' contains the most important keywords identified in each document.")
print("- The graph above shows the average importance of the top 10 keywords across all documents.")
print("- TF-IDF (Term Frequency–Inverse Document Frequency) measures how relevant a word is in a document, adjusted for how common it is across the whole dataset.")
print("- Higher average TF-IDF values indicate terms that are both frequent in specific documents and rare in the rest, making them distinctive.")
print("- These keywords can help identify dominant themes, trending topics, or unique vocabulary in the corpus.")

# Save Results
df.to_csv('MarketingCampaigns_Analyzed.csv', index=False)
df.head()

```

9.5.2 LOGGING DELETED N-GRAMS

Prerequisite: unigrams.csv, unigrams_to_modify.csv, bigrams.csv, bigrams_to_modify.csv, trigrams.csv, trigrams_to_modify.csv
import pandas as pd

```
# --- UNIGRAMS ---
print("Loading unigram files...")
original_unigrams = pd.read_csv("unigrams.csv")
modified_unigrams = pd.read_csv("unigrams_to_modify.csv")
print(f"Original: {len(original_unigrams)} rows")
print(f"Modified: {len(modified_unigrams)} rows")

print("Identifying deleted unigrams...")
deleted_unigrams =
original_unigrams[~original_unigrams['Unigram'].isin(modified_unigrams['Unigram'])]

deleted_unigrams.to_csv("unigrams_deleted.csv", index=False)
print(f"Deleted unigrams saved to 'unigrams_deleted.csv' ({len(deleted_unigrams)}
items).")

# --- BIGRAMS ---
print("\nLoading bigram files...")
original_bigrams = pd.read_csv("bigrams.csv")
modified_bigrams = pd.read_csv("bigrams_to_modify.csv")
print(f"Original: {len(original_unigrams)} rows")
print(f"Modified: {len(modified_unigrams)} rows")

print("Identifying deleted bigrams...")
deleted_bigrams =
original_bigrams[~original_bigrams['Bigram'].isin(modified_bigrams['Bigram'])]

deleted_bigrams.to_csv("bigrams_deleted.csv", index=False)
print(f"Deleted bigrams saved to 'bigrams_deleted.csv' ({len(deleted_bigrams)} items).")

# --- TRIGRAMS ---
print("\nLoading trigram files...")
original_trigrams = pd.read_csv("trigrams.csv")
modified_trigrams = pd.read_csv("trigrams_to_modify.csv")
```

```
print(f"Original: {len(original_unigrams)} rows")
print(f"Modified: {len(modified_unigrams)} rows")

print("Identifying deleted trigrams...")
deleted_trigrams =
original_trigrams[~original_trigrams['Trigram'].isin(modified_trigrams['Trigram'])]

deleted_trigrams.to_csv("trigrams_deleted.csv", index=False)
print(f" Deleted trigrams saved to 'trigrams_deleted.csv' ({len(deleted_trigrams)}
items).")

print("\nComparison complete.")
```

9.6 SELECTED CAMPAIGNS AND URLS

| Campaign Name | Company | URL |
|----------------------------------|----------------------------|---|
| Hangar 1 Fog Point | Hangar 1 Fog Point | https://www.youtube.com/watch?v=idZlOmQY5no |
| Turn To Cold | Procter & Gamble / Tide | https://www.youtube.com/watch?v=E1JetcvcFWI |
| I'm an Asshole | TUSHY | https://www.youtube.com/watch?v=FrTD3IHJdw4 |
| Inglorious Fruits and Vegetables | Intermarché | https://www.youtube.com/watch?v=p2nSECWq_PE |
| eBay Twiggy Full Circle | eBay with Essence Mediacom | https://www.youtube.com/watch?v=uY_2uVkxJ8U |
| Let's Look After What We Love | Sky | https://www.youtube.com/watch?v=DkkE7sefjIE |
| Cap the Tap | Reckitt-Finish | https://www.youtube.com/watch?v=_S--6oEATbw |
| Mosquito vs Mosquito | QuintoAndar | https://vimeo.com/818578284?cjdata=MXxOfDB8WXww&utm_campaign=5250933&utm_source=affiliate&utm_channel=affiliate&cjevent=ea2b2ea1088811f1825100470a1eba8e&clickid=ea2b2ea1088811f1825100470a1eba8e |

9.7 LIST OF QUESTIONS FOR RESPONDENTS

Survey: Questions, Types, and Options

Note: The “Video block” repeats (loops) for 8 different videos; it is written once below.

1. Consent & ID

1.1. I consent. I will answer honestly and thoughtfully. *Type: Single checkbox (required).*

1.2. Prolific ID. *Type: Short text (required).*

2. Free response & beliefs

2.1. What does “sustainability” mean to you in everyday life? *Type: Long text (required).*

2.2. Who should be most responsible for sustainability? *Type: Single-select multiple choice (required).* Options: Consumers, Companies, Governments, Other

2.3. Why? (Please explain your answer to the previous question.) *Type: Long text (required).*

3. Self-assessment & behavior

3.1. How would you rate the following statements? (1 = Not at all, 7 = Extremely)

Type: Matrix Likert 1–7 (Not at all → Extremely) for each statement below. Options:

“I’m environmentally conscious;” “I’m concerned about environmental issues (e.g., climate change, pollution, biodiversity loss, etc.);” “I’m knowledgeable about sustainability and environmental issues;” “I engage in sustainable activities (e.g., recycle household waste, avoid single-use plastics, conserve water, etc).”

3.2. Have you recently changed your behavior for sustainability reasons? *Type: Single-select (Yes/No) (required)*. Options: Yes, No

3.3. If you answered “Yes” to the previous question, please provide an example.

Type: Conditional long text.

4. Video block (repeats for 8 different videos)

4.1. What do you think this video wants you to do? *Type: Long text (required)*.

4.2. Does this campaign make you more likely, less likely, or neither to adopt or change a certain behavior? Rate 1–7, with 1 = Very Unlikely and 7 = Very Likely.

Type: 7-point Likert scale (anchored at Very Unlikely (1) and Very Likely (7)).

4.3. Why? Please explain your answer to the previous question. *Type: Long text (required)*.

4.4. **While watching this campaign, how strongly did you feel each of the following?** *Type: Matrix Likert 1–7 (Not at all → Extremely)*. Options: Anger, Fear, Anticipation, Trust, Surprise, Sadness, Joy, Disgust

4.5. **Which one emotion best describes how this campaign made you feel?** *Type: Single-select*. Options: Anger, Fear, Anticipation, Trust, Surprise, Sadness, Joy, Disgust

5. Your free thoughts

5.1. **Which campaign stands out to you, and why?** *Type: Single select from list (required)*. Options: Twiggy – eBay, I’m an Asshole – Tushy, Mosquitoes vs

Mosquitoes – Quinto Andar, Cold Call – Tide, Inglorious Fruits and Vegetables – Intermarché, Let’s look after what we love – Sky, Fog Point Limited Edition Vodka – Hangar 1 Vodka, Cap the Tap – Reckitt Finnish

5.2. **Which campaign would most likely change something you do?** Type: Single-select (required). Uses the same 8 campaign options as above.

5.3. Why? (Please explain your answer to the previous question.) *Type: Long text (required).*

5.4. What do you think about businesses making marketing campaigns to promote pro-environmental behaviors? *Type: Long text (required).*

5.5. What do you think businesses can do to make you adopt pro-environmental behavior (e.g., recycling waste, etc.) or change an existing behavior to be pro-environmental? *Type: Long text (required).*

5.6. Any other thoughts? (e.g., Are those campaigns authentic to you? Are they profit-seeking? Can they not be profit-seeking?) *Type: Long text (optional).*

6. Brief sociodemographic questions

6.1. **What is your biological sex?** *Type: Single-select (required).* Options: Male, Female, Prefer not to say

6.2. **What is your age?** *Type: Single-select (required).* Options: Under 18, 18–24, 25–34, 35–44, 45–54, 65 and older

9.8 CONSUMERS' GENERAL OPEN RESPONSES

9.8.1 WHAT DOES "SUSTAINABILITY" MEAN TO YOU IN EVERYDAY LIFE?

Table 39 Consumers' responses to "WHAT DOES "SUSTAINABILITY" MEAN TO YOU IN EVERYDAY LIFE?"

| |
|--|
| The ability to keep something going. |
| Sustainability means reuse recycle and repeat to me. It is a way of life to keep things in cycle for a little extra time. It is about being environmentally friendly. |
| Making choices that balance my needs today with allowing resources for the future |
| Sustainability to me means making a conscious effort to reduce waste and be aware of the way we're impacting our planet on a daily basis. |
| Items that are recyclable, things that are environmentally friendly |
| Living my life in such a way that I do my best to reduce waste and use up all of the things I already have |
| It means living in a way that has the least negative impact on the planet as possible. |
| To me it means a product that will go through many various life cycles before being fully disposed of. |
| The concept that there is little to no harm done in the manufacturing and processing of an item. If a farmer near me grows tomatoes using rainwater and no chemicals, and I walk to that farm and pay for the tomatoes by trading goods and/or services, that is sustainable. |
| Lasting, such as being able to be sustained. In everyday life, I hope that my family's health and happiness is sustainable for many, many years. |
| It means practices as far as resources where they can continue without harming the environment or excessively use resources inefficiently. |
| Being environmentally aware of products I buy and waste that is thrown out. Knowing that the products I buy have a low carbon footprint in the manufacturing process. |
| Reducing my waste. Recycling, saving water, and making items last. |
| To mean it means not buying more than I need, eating local, wearing clothes & shoes until they wear out, rejecting rampant consumerism, living simply so others can simply live, always remembering that there are generations and generations of people that will need to live on this Earth as well. |
| Resource efficiency, mindful consumption, and waste reduction. |
| Sustainability means not buying single use products, conserving electricity and water, thrifting and upcycling clothing and other items, trying to make sure that my purchases whether its food, home items, clothes etc are sustainably sourced and ethical |
| That products can be recycled or somehow re-used instead of making new products of the same type from raw, fresh material. |
| It means not to waste natural resources. |
| To do more with less and to be able to consume the same or less amount of the energy that can be renovated |
| Sustainability in everyday life means using the resources you have wisely and opting for reusable resources versus one time use items. |
| Sustainability is the quality in which a resource is utilized and maintained in a manner that ensures that it will last for many generations to come. This can be done through efforts such as limiting pollution, recycling, and reducing waste products |
| It means being able to continue doing things while also not harming that much of the environment with needless waste. |
| Making things on this earth be used in a manner that makes them not cause waste and pollution of the atmosphere and cause global warming. |
| It is important that the resources we use can be replaced |
| The act of balancing economical, social, and environmental growth of a particular state to meet future requirements. |
| Sustainability to me means living life in such a way that we preserve the environment for a better future. It is about ensuring that our actions today will not cause harm to the environment. |
| Make actions that help environment |
| Ensuring that the resources I have today will serve my needs and be able to cater for me and others later in life too. |
| Being able to maintain the standard of service or living of a particular group or service. |
| sustainability means being mindful of how your products and items you own are affecting the environment and how you can preserve the state of the item. |

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| Sustainability means making choices that meet my needs but doesn't compromise future generations. It means reducing waste, recycling more, using things multiple times, buying second hand items and trying to conserve energy as much as possible. |
| Making choices that will have minimal impact on future generations. |
| Sustainability means that the good or service comes from sources that are focused on waste reduction and/or pro-environmental practices, such as renewable resources, and "recycle, reduce, reuse". |
| Living responsibly by conserving resources, reducing waste, and protecting future generations. |
| Being in control of controlling what I have without limiting others. |
| That I can live my life as Godly as possible in a way that pleases him THE LORD GOD ALMIGHTY |
| Doing things to save resources where they would otherwise be wasted |
| To maintain or survive. |
| Recycling and reusing things. |
| Sustainability in everyday life means living in a way that takes care of the earth so people today and in the future can have what they need. Doing things that do not harm the planet literally |
| Being able to go on and continue doing what you are doing over a long period of time, especially if it makes sense economically. |
| It means a life of nature, everything on earth is a part of nature. Sustainability means everything remain safe and sustain, especially the nature like trees, water, and its surroundings |
| it means ability to be maintained at a certain level |
| Sustainability means making everyday choices that are kind to the planet and don't waste resources. |
| In my opinion, "sustainability" in daily life refers to making decisions that ensure the long-term prosperity of the earth and its inhabitants. It's about taking small, doable actions, such as reusing water bottles rather than purchasing plastic ones, eating more plants to reduce carbon footprints, or helping out local businesses to lower shipping emissions. Balance, in my opinion, is also key: making prudent use of resources without depleting them, whether they be the Earth's or my own energy. |
| Sustainability to me in my everyday life means not living in excess |
| Sustainability, to me, means making daily choices that reduce my negative impact on the environment and support the well-being of future generations. It includes actions like reducing waste, conserving energy and water, choosing eco-friendly products and supporting local or ethical businesses. It's about living with awareness of how my lifestyle affects the planet. |
| Sustainability reminds me of environmental-friendly habits. For example, leaving the lights off in empty rooms, unplugging unused phone chargers, and not using so much plastic. |
| It means looking out for how we consume various things such as energy and water and making sure we take approaches to preserve them. |
| In my understanding, sustainability in everyday life is making decisions that save on waste and resource wastage and preserving the environment to satisfy the future. |

9.8.2 WHO SHOULD BE MOST RESPONSIBLE FOR SUSTAINABILITY? WHY?

Table 40 Consumers' responses to "WHO SHOULD BE MOST RESPONSIBLE FOR SUSTAINABILITY? WHY?"

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| Because they affect everyone and can make laws. |
| Companies are doing environmental damage on the largest scale compared to consumers and government. There is so much unsustainability from big companies in comparison. |
| Governments should be most responsible for sustainability because they set the laws, incentives, and systems that shape how companies and consumers behave. |
| I believe governments have the authority to set policies and have access to resources to ensure we are making our best effort towards caring for our planet. |
| Everyone has to work towards it, it's unbalanced if it's just one side. |
| Governments are the only system listed that can regulate the industry. |
| Because they have the greatest impact on the planet. |
| Government is paid to protect the general public. |
| The government has a lot more power and ability to make sure that companies uphold sustainability laws. They can also provide easier ways for consumers to take part in sustainable behaviors. |
| I think that we can all play a part in trying to keep our world and what we need in life more sustainable if we work together to do so. |
| Companies do the most damage and therefore I feel it's more on them to focus on sustainability. Moat companies are wildly profitable and can afford it. |

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| Companies are in control of their manufacturing process and therefore can lower the footprint of their products either through packaging or materials used. They can also switch to other forms of energy such as solar or wind to power their plants. |
| They have the resources, they have more power and the way they import and provide is crucial. |
| If consumers don't consume more than they need then companies won't produce what they can't sell. And governments don't seem ineffective at doing anything productive or positive. |
| Governments must create mandatory regulations, set large-scale infrastructure, and ensure a just transition. |
| I think everyone from the top down has a role to play in protecting the environment, even the act of recycling a single can or turning off the water while you brush your teeth can have a huge impact if it becomes a habit and more and more people do it. The more people, regular everyday people that say "what does what I do matter" the less the people "up the ladder" will be willing to do. |
| I'd like to keep government out of the mix because they already argue about enough stuff, it would just give them more to argue about. |
| They are the ones who make the items and have the most impact. |
| Because everything interacts with each other. Governments need to take the right steps with favorable policies. Companies follow that policies and consumers creating a conscious society. |
| We are the ones who make the choices to buy or not and that's what companies listen to. |
| Companies are most involved in the process of producing and disposing products. As such, they directly interact with the limited resources which are necessary to make product or dispose of it. The matter of production and disposal has sparked many ethical dilemmas which have raised awareness to the process of production and disposal. |
| Because they cause the most harm, and the government (at least in the US) has no feeling. |
| We are the ones that buy and consume the products that are produced. |
| They create the products we use. |
| They can influence the things that come out to public in the form of branding and style. |
| The government has the most responsibility because it determines the sustainability rules for consumers and industries. If the governments adopt effective regulations, it can improve sustainability at all levels. |
| To regulate companies and help people focusing on right actions they should take. |
| On the larger scale, much of the talk around the topic requires that the government institutes critical measures to preserve the available resources for future generations, even while using them to achieve our wants in the present. |
| This act will start from them before transcending to the others. |
| I think this because the companies that create products are who mainly can determine how the products are sustainable or not. |
| Companies should be most responsible because they have the ability to develop products that are sustainable and some of them are responsible for emitting many pollutants into the atmosphere. |
| If companies are financially benefiting from their production, then they should be responsible for the protection as well, with oversight of course, because you can't trust a corporation to do anything but ensure their own profit. |
| I believe that only governments have the capacity to truly enforce sustainability, but consumers and businesses can definitely contribute. It's a whole "carrot and stick" conundrum. Voluntary eco-friendliness is more desirable, whenever possible. |
| Governments set policies, regulate industries, and protect resources for sustainability. |
| They are the most affected by any changes in sustainability. |
| People need to focus on GOD for their sustainability it is DUE TO HIM THAT THEY HAVE IT Genesis 22: 14 New Living Translation 14 Abraham named the place Yahweh-Yireh (which means "the Lord will provide"). To this day, people still use that name as a proverb: "On the mountain of the Lord it will be provided." |
| I think that consumers make the purchase decisions, so they ultimately decided what governments and companies do in terms of sustainability, but they all play a role in it. |
| Government should be responsible for sustainability. |
| Because governments make laws and rules that can guide both companies and people. |
| We all have a part to play but as final consumers we can dictate what the companies produce and which companies we should get things from. |
| Since they bring us the products, they should make sure the products are sustainable. |
| It concludes everything, if the consumer is aware of environment no companies nor the governments can't take any illegal actions. |
| With sustainability awareness, the positive influences of sustainability metrics upon consumers buying decision are likely to increase. |
| Companies should lead because they make the product we use and can set sustainable practices that impact people and the environment on a large scale. |

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| Governments should bear the primary responsibility for sustainability. They possess the power and means to impose legally binding regulations that influence entire systems, including waste, consumption, and production. |
| I think that if the government puts the laws into effect that promotes sustainability then people must follow them. |
| Governments have the power to create large-scale changes through policy, regulation, and investment. They can enforce environmental standards, support green innovation, and hold companies accountable. While individuals and companies also play a role, real impact requires systemic change, which governments are best positioned to lead. |
| Consumers have "bigger" problems than global warming/climate change. And it's not even these things aren't a huge problem-- it's just that people have a lot of immediate problems. When you're worried about bills and survival, the last thing on your mind is saving the planet. However, it is the consumer's job to at least try to do what they can. It's also the government's responsibility because they have a lot of resources. Their duty is to the people and essentially, the planet is too. |
| I think they are the ones who can write new laws and rules about sustainability and enforce them. |
| Companies produce the majority of products and waste, so their policies and practices have the largest impact on environmental outcomes. |

9.8.3 WHICH CAMPAIGN STANDS OUT TO YOU, AND WHY?

Table 41 Consumers' responses to "WHICH CAMPAIGN STANDS OUT TO YOU, AND WHY?"

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| The Tide campaign stands out. I love those commercials. |
| I liked the vegetable grocery store the most. The story and narrative were the most compelling. |
| Tide Cold Call, because it is an easy way to conserve energy by washing with cold water. |
| The campaign that stands out to me is the one that discussed the mosquitoes. It taught me something new about how diseases are carried by mosquitoes. I thought the solution they came up with was very interesting and creative. |
| The Tushy one is definitely my favorite; it was a laugh. |
| The Finish "Cap the Tap," because it makes me want to buy a product I wouldn't otherwise buy. |
| The campaign that stood out most to me was the Tushy campaign. It was vulgar and shocking, so it stood out more than the others and stuck with me the most. |
| I liked the mismatched fruits campaign the best. |
| The campaign using fog to make vodka is very innovative and uses water in a way that has never been used before. |
| Cold Call Tide stands out the most because I use Tide a lot anyway and because there were many familiar faces in the commercial. |
| I think the last one, because it's a very easy one to adopt. It's a simple change and a simple message that takes two seconds and doesn't require me to do anything labor-intensive at all. Second would definitely be the ugly produce thing. I do wish I had easier access to that to save money and food waste. |
| Collecting fog to make whiskey. |
| I'm an Asshole — Tushy. It is unique; it's definitely surprising and new and something never done before. It's memorable to me, for sure, but I know some wouldn't get the joke and humor and would get offended. |
| The talking asshole stood out because it was very clever and funny. |
| Inglorious Fruits and Vegetables since it advocates reduced fruit wastage. |
| I really wish it was one of the others, but the one that's going to be stuck in my head for a month is the Tushy one. It's the funny and crude humor, the absolute surprise in seeing it among all of these, and the fact that I spit my water all over my monitor during it. |
| I don't know; I kind of like Tide because I like Stone Cold Austin and Mr. T. |
| I thought that the vodka one stood out the most because it was surprising and made me wonder: if they could do that for vodka, could fogs help conserve water in other ways? |
| I liked the one of the mosquitoes; I think it is a really novel product. |
| The Tide cold call because I am a satisfied Tide customer for many years. I know the product works, and it's an easy way to be sustainable. |
| I think Tide's campaign stands out the most because it is the most practical, which not only shows a very easy-to-implement method of conserving energy, but also provides a product which further encourages conservative practices. |
| The save the earth by sky, because it was the only one seemingly not trying to sell me something. |
| The vodka made with fog; it is so surprising and nice. |
| Washing with cold water could make a big difference if everyone started doing it. |
| The campaign on the usage of water because most people misuse it subconsciously. |

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| The campaign of using cold water for laundry stands out because laundry is a common chore and can go a long way toward conserving the environment. |
| Inglorious Fruits and Vegetables. It's an amazing idea to avoid wasting food. |
| Cold Call — Tide is my best among the list. It strategically combines their product with an effective solution for consumers. Saving so much with just a minor change is a very appealing and commendable effort. |
| The "Cap the Tap." It feels relatable. |
| I think the first one, because it seems like it can have the best impact and it is the most doable for me. |
| Cold Call — Tide stands out to me because it requires no effort for everyone to change their habits, and it helps everyone by using much less energy. It is very simple to do, and everyone can do it. |
| The vodka message stood out because they weren't a huge corporate consumer trying to pass the conservancy effort to the poor and/or working person. They weren't the cause of a problem passing the buck... they seemed to actually care. |
| The one about imperfect vegetables made me really happy, but now I cannot stop thinking about the stupid asshole, because it was ridiculous. |
| The campaign that stood out to me was on consuming food that might be considered ugly or unfavorable. A lot of food is thrown away because it cannot be sold because it is ugly or unfavorable. Pushing campaigns that ensure food security and consuming everything we grow is vital. |
| The one on sustainability. It's for my own survival in the future. |
| The asshole one, because I didn't like it and thought it was weird. |
| The one about the cap for conserving water on the Finish bottle, because it is such a useful idea and the way that it is executed is so ingenious. |
| Mosquito vs. Mosquito because it was amazing. |
| Inglorious Fruits and Vegetables campaign stood out because it was creative. It showed an easy way to reduce food waste. |
| The Tide cold call. |
| The Tide one, since it hits too close to home. |
| I think the mosquito campaign stands out among all of them. It's a very unique idea and workable so far. |
| The campaign for "I'm an Asshole." |
| Fruits and vegetables. |
| Use of Cap the Tap to conserve water since it is a practice more achievable. |
| I'm an asshole. I thought it was very humorous, but also very logical. I think using just toilet paper is not a good way to clean yourself after going to the toilet. |
| The Inglorious Fruits and Vegetables — Intermarché campaign stands out to me because it creatively challenges the idea of "perfect" produce and raises awareness about food waste in a memorable way. |
| I like the vodka commercial. I don't drink, but I think the idea of using fog to create it is interesting and creative. What a great way to not consume too much water. |
| The Tide campaign, because we wash clothes a lot and, in fact, we do use warm water; why not simply change it to cold, and it helps the environment and it helps us save money. |
| I find Inglorious Fruits and Vegetables significant since it applies humor and creativity to address the issue of food waste and makes the problem memorable and relatable. |

9.8.4 WHICH CAMPAIGN WOULD MOST LIKELY CHANGE SOMETHING YOU DO? WHY?

Table 42 Consumers' responses to "WHICH CAMPAIGN WOULD MOST LIKELY CHANGE SOMETHING YOU DO? WHY?"

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| Those commercials are funny. And I like washing in cold water. |
| This is the likeliest item I would buy from all these things. I've been wanting one for a while. |
| Tide Cold Call because it is an easy way to conserve energy by washing with cold water. |
| I believe that the product in the water-saving ad is something I could easily integrate at home to help save water and decrease my water bill at the same time. |
| Hysterically funny. |
| I would like to see how the cap works to save water in my own home. |
| I'm interested in conserving water. |
| It seems the most aligned with my values. |
| I would be happy to eat fruits and vegetables that are not perfect. It's terrible that they would be thrown away just because of how they look. |
| I already use Tide a lot but was unaware that I can always wash laundry in cold water when using it. |

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| It's an effortless change that can have benefits to my bills and the planet. I could go downstairs and change the setting on my washing machine right now. Something like this—i.e., a small change—is very easy to suggest to people because it's super easy to implement. |
| If we had imperfect fruits and vegetables in the grocery stores, I'd buy those. |
| The Tide ad was informative, detailed, and felt engaging to me. I would change my habit and switch to cold water. It seems simple and impactful. |
| Because this commercial is very motivating to change my behavior when it comes to the fruit that I frequently buy. It advocates for climate conservation. |
| Because right this moment, with everything going on—prices rising, paychecks not keeping up, environmental issues, programs being cut—I think that more affordable fresh produce being available to more people would be an amazing thing. Healthier, full children going to school, learning, growing to be our future. |
| I'd probably buy the deformed fruits and vegetables; sometimes my local farm has fruits and veggies not quite perfect. |
| It is a product that I could use to help the environment but also help me save on my electric bill. |
| Because it is something I can do right away, and I don't need anything to do that. |
| This would be an easy way to keep my tap from leaking, and it would save me money as well as being a sustainable thing to do. |
| Of all the campaigns, Tide's seems to be the most practical and the easiest to act on. |
| Read above to see why I like it the most. |
| It is a good way to save energy. |
| I think this is easy to do and can easily be achieved. |
| It is one common thing to start with, being environmentally friendly. |
| Because I will start using cold water for laundry henceforth. |
| Avoid wasting food. |
| I would serve the double purpose of helping me cut down on cost and saving the planet, too. |
| It is an essential part of taking care of the environment. |
| Because I didn't know that those foods are as good as the good-looking ones. |
| It will change what I do because of its simplicity and the valuable outcome that it produces. |
| As long as it didn't have a huge environmental impact, I'm all for fewer mosquitoes biting and bugging me! |
| Because I've been wanting to get Imperfect Produce, but I will likely do several of these things, such as purchasing a couple of aerators. |
| I would want to ensure food security and, therefore, consume food that can be deemed ugly. |
| Good for personal hygiene. |
| It's something I could do, so that's why. |
| It is the most accessible one and one that would be easy to execute and make a habit. |
| It helps to keep food safe. |
| It gave me a clear and simple action, like washing clothes in cold water. It seems easy to do, and I can start right away. |
| I like the ad and the initiative behind it. |
| As I said, laundry is something done everywhere. So if I can save water while doing it, win-win for me and the planet. |
| It would make us safe and protect people surrounding my area. |
| It makes me minimize food wastage. |
| It aims more at improving my health. |
| I experience a lot of water wastage in my house. |
| All of these vegetables were going to be thrown away just because they weren't aesthetically pleasing. After seeing this video, I think how ridiculous that is. They are still perfectly good and nutritious. |
| The Cap the Tap campaign makes the issue personal and actionable by highlighting how small changes, like turning off the tap while brushing teeth, can have a big impact. It feels practical and achievable for everyday life. |
| It's the only one that makes sense to me. Everything is either not applicable or unnecessary. |
| Because it is something we regularly do, and it is just so simple and yet effective. |
| The action described in the campaign is the washing of clothes in cold water, which is a very simple thing that I can adopt in my everyday routine. It is practical, actionable, and has a definite environmental advantage. |

9.8.5 WHAT DO YOU THINK ABOUT BUSINESSES MAKING MARKETING CAMPAIGNS TO PROMOTE PRO-ENVIRONMENTAL BEHAVIORS?

Table 43 Consumers' responses to "WHICH CAMPAIGN WOULD MOST LIKELY CHANGE SOMETHING YOU DO? WHY?"

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| It's OK. |
| I think they don't need celebrities, like in the last video or Vogue. Those are not real people to get opinions from. |
| I think it's a smart idea to motivate change. |
| I think it's a great thing that companies are leaning towards pushing for sustainable practices in their advertisements, and I hope this trend continues. |
| I think it's fantastic. |
| I admire them when they are trying to spread the word and make a difference, but if they are just using pro-environmental tactics in order to sell more, I feel it is obvious and disingenuous, and I don't like that. |
| I think it really depends. I think a lot of the time it really is greenwashing just to sell a product and look better. Occasionally I think a company will really make a difference or have their heart in the right place. |
| I trust them slightly more. |
| It depends. The Tide commercial was really annoying. I just couldn't help but feel that it was all performative. The ad for the cap for faucets looked like they were really trying to make a difference, because they put work into designing the cap. |
| I think it is a good idea as long as the ads are giving legit information that really can help the environment. |
| I enjoy it when they keep it upbeat and fun and make it seem like a team behavior. If it's good for the planet and their business, it's a win-win. |
| I think it makes the companies look like they care for the environment. |
| It is great because it spreads awareness and is beneficial. |
| I like it and hope every business joins in on promoting pro-environmental behaviors. |
| To align with government policies. |
| I think it's great that they do, and I hope more do, as long as they follow through and are actually devoted to the cause and the behavior. |
| I think they're just trying to gain favor with environmentally conscious people. |
| I think that as long as their campaigns are true and not just to get people to buy, then I'm in favor of it. |
| It's a good thing to gain some reputation at the same time they market themselves. |
| I think it's trendy but in a positive way, and if they did not do this they would get left behind. |
| I think, while it is okay for businesses to make marketing campaigns to encourage consumers to be more eco-friendly, they should also be held accountable to put forth efforts that minimize the production of waste and harmful substances to meet the demands of the consumers. |
| I hate it. Maybe they should start being more sustainable before they pass the buck on to us. |
| I like them. |
| I like it because it makes people aware of the environment and what they can do. |
| It is an integral part of their businesses. |
| It is a good gesture and a good sustainability measure. |
| It can help protect the environment. |
| It is actually a viable means to get the work of sustainability done. |
| They are doing a great job, which is commendable. |
| To show the public what they can do for the environment, and to make a profit but not be guilty about being harmful to the environment. |
| I think businesses have to do this because they can reach a vast amount of people and spread new knowledge and showcase innovative products. |
| I think that usually it is a ploy to pass the buck, get a tax break, or simply play on people's emotions in order to make a profit. |
| Because we all need to do this to save the planet as much or for as long as we can, but also it is very popular and is virtue signaling, which benefits everyone for the most part. |
| These businesses are favorable and important in society because they show sustainability and not just clingy campaigns that target sales increases. |
| They are doing some great work. |
| It's a good thing, keep at it! |
| I think it is great and that more should do it to spread the message. |
| It is so great and helps a lot. |
| I think it is good because it spreads awareness, but it should be honest and not just all about the sale. |
| It's very good. |
| They are awesome, to be honest. Most don't even feel like an ad. |
| I think they are doing it with a good mindset and to protect the environment. |
| The businesses are so creative and are aiming to bring change to the world. |
| I think it can be a positive thing. |
| It is a good idea since it creates awareness on the best practices to promote sustainability. |

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| I think it's a good idea. Anytime that you can get some people to follow pro-environmental behaviors, it's a good thing. |
| I think it's a positive step when businesses use their platforms to promote sustainability. It can raise awareness among consumers who might not otherwise think about these issues. However, it needs to be genuine and backed by real company actions to avoid being seen as "greenwashing." |
| I think it's a great way to at least try to do something positive. We can't make people respect or save the planet, but we can at least present information that leaves them with the autonomy to make their own decisions. |
| I like it because it is for a good cause. |
| I believe that it can be extremely successful when performed in a genuine way. Businesses can afford to contact masses of people, and a sustainable behavior could become more noticeable and socially approved of with the help of a campaign. But it is notable that the campaigns should not just be a mere profit-making venture, but one that truly promotes sustainability. |

9.8.6 WHAT DO YOU THINK BUSINESSES CAN DO TO MAKE YOU ADOPT A PRO-ENVIRONMENTAL BEHAVIOR (E.G., RECYCLE WASTE, ETC.) OR CHANGE AN EXISTING BEHAVIOR TO BE PRO-ENVIRONMENTAL?

Table 44 Consumers' responses to "WHAT DO YOU THINK BUSINESSES CAN DO TO MAKE YOU ADOPT A PRO-ENVIRONMENTAL BEHAVIOR (E.G., RECYCLE WASTE, ETC.) OR CHANGE AN EXISTING BEHAVIOR TO BE PRO-ENVIRONMENTAL?"

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| What do you think businesses can do to make you adopt a pro-environmental behavior (e.g., recycle waste, etc.) or change an existing behavior to be pro-environmental? |
| Probably nothing. |
| Actually, doing something is the correct action to pursue. |
| Continue to educate consumers. |
| I believe businesses would want to adopt this behavior to put a more positive image of their company to consumers, to try and increase the sales of their products. |
| They're already doing it. |
| Change their own behaviors to stop emitting so many toxic greenhouse gases into the atmosphere, wasting water and resources on silly products, etc. |
| Use less plastic, promote sustainability, utilize renewable energy sources. |
| I think they can do MUCH more, including less toxic ingredients, less plastic, and give back more when they are making billions of dollars. |
| Make it easier to do so, such as making products with the cap available, or providing resources such as the mosquitoes, so I can actually feel like I can do something that can help the greater good. |
| Make all their ads about how their products can help the environment. |
| They can make it something where it's easy to do and easy for me to see how it is pro-environmental. |
| Use renewable energy in their manufacturing. |
| I would like for them to make sustainable options easy and less costly for people like me. |
| Well, first, it would have to be a change I haven't already made, and second, they should communicate their message in a way that gets my and other people's attention. |
| Make daily adverts. |
| I think that they can do things like encouraging and rewarding carpooling or use of public transportation, make sure that any paper or products they use in their company are recycled or sustainably sourced. The companies can actually donate not just money but TIME to environmental causes in their community and encourage and reward employees who do the same. |
| One thing comes to mind: about an hour away from me there are large potato farms and a chip company buys the potatoes, but if they are too large or small they are just left in the fields, so people are then invited to come take the potatoes. One year my friend got about 100 grocery sacks filled with potatoes, but he was so secretive about stuff he wouldn't tell me what he was going to do with them. But he said still there were thousands left there to rot; just seems wrong when, every day, I hear the news talk about food banks running out of food. |
| Make sure it's a product I use or a change that doesn't hurt my way of living or my wallet. |
| Making it easy and convenient for us to adopt that behavior without losing much. |
| By not charging me a lot of extra money to make environmentally better choices. I can only afford what I can afford. |
| I think businesses can continue to educate consumers on practical behaviors and efforts that they are taking to reduce waste or to help the environment. |

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| Get regulated. |
| Keep coming up with new ideas like the ones shown. |
| Make it so it is not an inconvenience. |
| They should sensitize the public and consumers more often. |
| They can conduct campaigns to explain why it is important. |
| It can help me change my behavior. |
| Use an educative campaign message like the Tide advert, which is a double package. |
| They should practice what they tell the consumers themselves. |
| Give us money for doing that; this is something that can attract many people. |
| They can lead by example by creating innovative products that help the environment. Also, they can educate me on how these products can make an impact so I can spread the word to others. |
| Come forward with all their dirty secrets on how they are gouging people and robbing the environment and show that they are making a real and earnest change to their practices. |
| If they don't, there could be backlash, and because we all should be doing it. |
| Recycling and switching to options that conserve energy. |
| Being educated on the importance of environmental behaviour. |
| Don't be pushing it too hard; tell people simply what it is you want them to do. |
| Provide options that are easy, cheap, and accessible for me to contribute with. |
| Be truthful and trustworthy. |
| Make the actions simple and easy to follow. Also show the benefit clearly. Giving small rewards also helps. |
| They can reduce the bad chemicals and turn to safer ones. |
| Anything that saves on water and energy will do, especially for big businesses. |
| Yes, they are creating awareness, and that will change me. |
| Frequent reminders and sessions on how they do it. |
| It can raise awareness and encourage people. |
| Be the one in the lead to practice these behaviors. |
| I think businesses should just keep promoting pro-environmental stuff like this; the more that they do, the more that it's gonna catch on with people. |
| Businesses can make sustainable options more affordable and convenient, provide clear information on how to recycle or reduce waste related to their products and lead by example by using sustainable materials and processes. Incentives or rewards for sustainable choices also help motivate behavior change. |
| I'm not sure. I think I already do enough as is when I'm thinking about it. |
| I think they need to make sure they are using renewable energies and their offices are very green. |
| It is possible to make sustainable options more convenient, affordable, and obviously beneficial by businesses. Motivational programs, such as discounts on environmentally friendly options, intuitive guidelines, or visible metrics of impact can be used to encourage me to become more sustainable. Imaginative storytelling and humor are also used in order to make the behavior more interactive and memorable. |

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Participation Des Entreprises Au Marketing Pour Conduire Des Changements Durables De Comportements Des Consommateurs Pour L'environnement

Résumé

Cette thèse étudie comment les entreprises peuvent susciter des comportements pro-environnementaux durables en articulant quatre leviers complémentaires : marketing transformateur (reconception des marchés, standards, infrastructures), marketing social (normes et mobilisation), nudges et architecture du choix, et co-crédation/co-design. Le dispositif empirique comporte trois volets : (1) une revue systématique PRISMA des interventions firmes-consommateurs, (2) une analyse d'un corpus de campagnes primées (NLP, codages abductifs) pour cartographier mécanismes, rhétoriques et cadrages de responsabilité, et (3) une étude d'audience mixte mesurant émotions, crédibilité, faisabilité perçue et intention d'adoption. Les résultats montrent que les effets les plus robustes émergent d'une orchestration amont-milieu-aval : la reconception du marché rend la conduite durable normale et facile ; le marketing social la rend socialement lisible et désirable ; les nudges réduisent les frictions au moment du choix ; la co-crédation consolide capacité, légitimité et engagement. Ils précisent aussi des conditions de réussite : consonance affective (confiance et joie), visibilité des normes, étapes du changement, et gouvernance (standards ouverts). Un cadre intégré TMSM-CD est proposé avec implications managériales (séquençage des leviers, mesures comportementales) et pistes de recherche.

Mots clefs français : Comportement pro-environnemental; Marketing transformateur; Marketing social; Nudges; Architecture du choix; Co-crédation; Co-design; Normes sociales; Étapes du changement.

Businesses' Marketing Practices For Driving Sustainable Behavior Changes Among Consumers

Abstract

This dissertation examines how firms can catalyze durable pro-environmental behavior by orchestrating four complementary levers: transformative marketing (market redesign via standards, defaults, and infrastructures), social marketing (norms and mobilization), nudges and choice architecture, and co-creation/co-design. The empirical program integrates three components: (1) a PRISMA-guided systematic literature review of firm-to-consumer interventions; (2) a corpus analysis of award-winning campaigns (NLP and abductive coding) that maps mechanisms, rhetoric, and responsibility framing; and (3) a mixed-methods audience study that measures emotions, credibility, perceived feasibility, and stated adoption. Findings indicate that the most robust outcomes come from upstream-midstream-downstream coordination: market redesign makes sustainable conduct normal and easy; social marketing makes it socially legible and desirable; nudges reduce point-of-choice frictions; co-creation builds capability, legitimacy, and commitment. The study also isolates success conditions, including affective consonance (trust joy), visible norms, stage-of-change tailoring, and governance through open standards. An integrated TMSM-CD framework translates these results into managerial guidance (lever sequencing, behavioral measurement) and a research agenda.

Keywords : Sustainable consumer behavior; Transformative marketing; Social marketing; Nudges; Choice architecture; Co-creation; Social norms; Stage of change; Affective design.

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