



Western Washington University
Western CEDAR

WWU Honors Program Senior Projects

WWU Graduate and Undergraduate Scholarship

Fall 2019

An Investigation of Plastic Ubiquity and the Redundancy of Waste

Barbara Avery
Western Washington University

Follow this and additional works at: https://cedar.wvu.edu/wwu_honors



Part of the [Human Ecology Commons](#)

Recommended Citation

Avery, Barbara, "An Investigation of Plastic Ubiquity and the Redundancy of Waste" (2019). *WWU Honors Program Senior Projects*. 301.

https://cedar.wvu.edu/wwu_honors/301

This Project is brought to you for free and open access by the WWU Graduate and Undergraduate Scholarship at Western CEDAR. It has been accepted for inclusion in WWU Honors Program Senior Projects by an authorized administrator of Western CEDAR. For more information, please contact westerncedar@wwu.edu.

Plastic Ubiquity and the Redundancy of Waste: Consumer Choice in Packaging

Introduction

Plastic is everywhere. It is in our homes, food, waterways, and even in our bodies. Its spread and impact on the environment have become a global epidemic without an identified cure. As a highly demanded material for packaging, plastic encases much of what consumers purchase and has created—within many societies—an expectation of a product’s “newness.” This social affixation with plastic highlights the extent to which consumerism has become an integral part of society, regardless of the environmental costs. While stand-alone products are often wrapped in plastic, those that come in multi-pack packages tend to also come individually wrapped within their larger plastic containers, creating redundancy and excessive waste. The result of using all of this plastic is not only an external problem that affects the environment but an inter-cultural problem that has led sociologists interested in consumerism to label plastic as an epitome of consumer culture (Ritzer, 1999).

Given the identified consequences of plastic, as found in consumer goods, my goal is to explore consumers’ perception of plastic and whether society can relinquish its association of plastic being a proxy for “new” to adopt a more ecologically neutral association towards packaging. Using Hirschman’s theoretical framework from *Exit, Voice, and Loyalty* (1970) to investigate what drives consumption, I will engage peer-review articles on plastics in three areas of plastic consumerism: fashion, food, and sports before turning to a survey constructed to measure how engaged individuals are in the ritual of consuming plastics and whether they consciously realize the extent of their consumerism. In doing so, I hope to propose solutions on how to change the way society engages with plastic, while highlighting better design options that

shift packaging of consumer goods away from plastic and towards alternatives or package-less products.

Literature Review

Packaging plays an important role in consumerism, acting as both a symbol of its contents as well as its wastefulness (Roberston, 2005). Embodying consumer culture, packaging performs four main functions: containment, protection, convenience, and communication (Canal, 2013). Several studies identify that of these functions, consumers are most unwilling to compromise on a package's convenience which can take many forms including single units (i.e. individual containers), resealability, flexibility, transparency, microwavability, etc. (Marsh & Bugusu, 2007). As a result, the most ubiquitous form of packaging throughout consumer markets is plastic, based on its ability to meet these consumer demands, even at the cost of being more difficult to collect, sort, and recycle (Canal, 2013).

Single-use plastic was first introduced in the 1950s at a time when the convenience of “throwaway culture” was welcomed with open arms, and its use drastically increased in the following decades. According to Szaky (2019), contemporary society produces roughly twenty times more plastic than it did in 1964, with the expectation to double again in the next twenty years. As the use of plastic increases, the rate at which society discards it after its initial use has far outpaced this rate. This crisis can be explained by Ulrich Beck's theory of reflexive modernization (1994) which describes the unexpected consequences of modernity and the new age in which people must come to terms with their actions.¹ For example, a new smartphone may

¹ This idea assesses how “social and natural processes are triggered in a reflexive way by other social and natural processes” (Ten Eyck, [2015:8]). Full citation: Ten Eyck, Toby. (2015). *Reflections from the Bookshelf: Sociological Concepts in Literature*. Cognella, Inc.

be viewed as a technological innovation (modernization), but its introduction can lead to discarding old phones into landfills that become toxic dumps due to the material degradation (reflex, or unintended consequences to modernization's progress). Similarly, Beck's exploration of a world risk society (1999) highlights society's unpreparedness and inadequacy when assessing risks, allowing issues like plastic packaging to go unchecked for decades. Not only are the consequences immediate, but they are not easily solved, becoming risks for future generations.

While plastic was once praised for its disposability, its environmental and social consequences were not considered at the time of its introduction. This lack of foresight both in planning and design has created a waste management problem that is likely to go unsolved for decades. This begs the question as to whether society has the power to make lasting decisions when faced with individual choices. Beck (1994) emphasizes the distinction between *choice* and *decision* as the separation of micro- and macro- levels of consumer and producer actions ([1994:75]).² He recognizes that “technological changes which impinge upon people's lives are the result of the intrusion of abstract systems, whose character they may influence but do not determine. The shifting design [...] presumably responds in some way to consumer demand; but [...] are controlled by large industrial corporations far removed from the control of the lay individual” ([1994:75]). With this in mind, I turn to Hirschman's conceptual framework to look more deeply at how society may want to (re)engage plastics, particularly in packaging through their individual and collective choices.

² Beck uses the example of ice cube trays to make his point. Initially, ice trays were made out of aluminum and were poorly designed to extract ice, so manufacturers turned to plastic without consumer input, highlighting that while society may make this design transition, it was not the consumers' choice to make plastic trays available. The *decision* was made upstream while a consumer's *choice* to purchase a plastic tray was dependent upon what was available as a result of a producer's decision.

Hirschman (1970) proposed a theory for consumer choice that can be used to frame the increasing demand of plastic and its role in environmental degradation. He theorized three factors affecting consumer behavior – the ability to *exit* a situation, the opportunity to *voice* concern, and the prospect of brand *loyalty*. Each of these components works with and against each other to determine what drives a consumer to create, maintain, and challenge a shopping or consuming habit. While consumer choice is difficult to assess as individuals exercise their own rationale(s) when making choices, it becomes even harder to measure when individuals are inconsistent within different markets (Grace & O’Cass, 2002). Often, the choices that individuals make rely on the type of product (i.e., its reliability, design, quality, features, aesthetics), packaging, price, brand, and personal feeling and experience (Grace & O’Cass, 2002). Thus, producers are tasked with creating goods that satisfy these individual demands on a large scale while still allowing room for experimentation and change to adjust for new customers, which likely differ from the consumers and products they acquired and created in the past (Goldsmith & Goldsmith, 2002).

Even with these difficulties of determining causality in an ever-increasing complex marketplace, it is still useful to think more broadly about what might be driving action. Hirschman (1970) defines *exit* as the action that consumers take to stop buying a company’s products and likelihood of economic departure from said company. This economic action on behalf of consumers means they will take their money elsewhere in the hopes of pressuring the company to search for ways and means to correct the products or systems at fault. An example of this might involve a gradual transition from mindless consuming to one of reduced or zero waste living, causing an individual to withdraw economically from all companies and markets using too much packaging (Van Dyke, 2018). As a result, individuals are consciously reducing their

intake of single-use materials, like plastic, and potentially their spending. This approach to “zero waste” living involves exercising “creativity within confines,” which attempts to find viable replacements to products that formerly resulted in excessive waste and spending, which represents the pressure exerted on producers (Van Dyke, [2018:5]). Despite exit’s seemingly permanent stance, it does allow for reentry if the consumer deems the company to have fixed the problem that caused them to leave in the first place, or if there are no exit options that consumers can choose to help change a company’s behavior.

Second, Hirschman (1970) describes *voice* as the action(s) consumers take to express their dissatisfaction directly to the company or management at the cost of walking away permanently.³ For the purpose of voice, this typically means that an individual will withdraw from the company, often engaging in protests to express dissatisfaction, only to go to another company that has comparable products, quality, and price but with the added benefit of whatever caused the customer to leave the original company. To support this vocal action, McDonough and Brauhart (2002) promote the idea of eco-effectiveness, which favors better design of products from the outset of their fabrication, “in which the very concept of waste does not exist” (McDonough & Brauhart, [2002:104]). This approach advocates for consideration of the whole, where the “goal is not to deprive society of its culture, industries, or presence, but to achieve a sense of large-scale biomimicry that replenishes itself. In doing so, waste will be reduced, as innovative design can completely eliminate the waste involved in products, packaging, and systems” ([2002:103,104]). If companies designed their products and supply chain more

³ While Hirschman does focus on using voice to display a consumer’s dissatisfaction with a product or practice, voice can also be used positively, such as a consumer saying they appreciate what a company or business is doing. Both aspects of voice can be powerful marketing tools, especially in a social media saturated society, in which influencers can direct consumers towards or away from a product.

effectively to meet consumer demands, then customers may not be forced to resort to voice. However, without this foresight, individuals may be pushed to exercise their voice when the issue in question is not likely to change despite taking direct action. As a result, voice is often the last step consumers take, making it a more costly venture for both the consumer base at large, and the company at fault, should they choose to ignore this protest.

Lastly, Hirschman (1970) identifies *loyalty* as the tradeoff between the certainty of exit against the uncertainties of an improvement in a deteriorating product. In this particular investigation, loyalty is affixed to brand loyalty, where customers may elect to consume goods from a particular brand—for any number of reason(s)—regardless of whether the company meets an individual’s ethics, expectations, beliefs, or demands. Brand loyalty plays a huge role in how consumers purchase goods—reducing ‘search costs’, establishing company credibility, creating a brand’s personality, etc. (Grace & O’Cass, 2002). An example of brand loyalty might entail a consumer supporting a company that uses sweatshops or excessive packaging even when it might not ethically align with their feelings about human working conditions, fair wages, or environmental mindfulness. Therefore, loyalty is difficult to measure in the traditional sense of consumerism as it relies on a host of factors—both inherent and developed—to explain why consumers buy what they do, even at the cost of personal conflict.⁴

Applying these three components of Hirschman’s theoretical framework to fashion, food, and sports further emphasizes plastic’s universal role and the redundancy of its waste. For the purpose of this analysis, the arena of fashion focuses on its quick lifecycle and packaging as a

⁴ I had the opportunity to experience consumer ‘loyalty’ firsthand when I presented a simplified version of my research to two fifth-grade Compass-to-Campus groups. This program brings elementary-aged students to Western Washington University’s campus so they can get a sense of college life. While the two groups of fifth-graders viewed plastics as problematic (i.e., the harm plastic straws posed to turtles was mentioned several times), not a single student hesitated in unpackaging the yoyos I provided, which came in plastic containers. This contradiction demonstrates Hirschman’s conception of loyalty to a product, regardless of whether it aligned with the students’ recognition of plastics’ harmful effects on the environment.

result of in-store and online purchases, rather than its composition (i.e. fabric). With that being said, fashion is an extremely resource-intensive industry, with the bulk of responsibility resting with the consumers who fuel the demand for quick turnover of new styles in the wake of designer looks (Claudio, 2007). Much of fashion encompasses the art of replication, which can make fast fashion desirable, as one can find variations of the same product at a handful of stores, whereas “slow fashion” or second-hand goods of “like” make and design may be more difficult to locate. However, this form of consumerism is much less convenient, making it a less appealing option for individuals to engage in. According to Joy et al. (2012), avid consumers browse stores approximately every three weeks for new clothes so as to stay relevant to the current trends, an extension of loyalty to include how and when one shops (276). This form of obsolescence mirrors that of the packaging used to protect and display these goods, which is spending less and less time actually containing the products as it did in years prior, meaning more time in the environment. Given that packaging is a technology designed with a particular function in mind, it comes as no surprise that it is subject to innovations in much the same way as current electronic technology—used until deemed useless or replaced by the ‘latest and greatest’ edition.⁵ One example of this short life cycle is exhibited by Canal’s (2013) article about the architecture of waste as it illustrates “the fashion cycle” (see image in *Appendix A*). Despite the quick turnover, fashion “serves as a means to understanding culture and values of a certain time, especially in relation to the role of collective taste in society” (Canal, [2013: 50]). Supporting this notion, a study performed by Joy et al. (2012), surveyed males and females between the ages of twenty and thirty-five researching the impulsivity of young consumers engaged in the action of “fast fashion.” The study found that this age group was significantly

⁵ See <https://www.canr.msu.edu/packaging/> for an example of a university degree program focused on packaging innovations.

more likely to buy on impulse and embrace short-term thinking, resulting in a double standard of sustainability in which survey respondents indicated they were concerned about the environment and social impact of their non-fashion purchasing decisions, but exhibited relatively little guilt about purchasing fast fashion and its disposability (Joy et. Al, [2012:291]). This comes in stark contrast to the WWII era's mentality where clothes were mended, repaired, and passed down through family members until repurposed into something else (Canal, 2013), and a far cry from eco-fashions that identify a product's environmental performance through whole lifecycle thinking to support sustainable consumption (Claudio, 2007). However, studies show a decline in environmental awareness among consumers, explained by "consumer disillusionment" (Meyer, [2001:318]). This echoes the idea explored by sociologist George Ritzer (1999) of 'cathedrals of consumption', which are places of "hyper-consumption" designed for consumers seeking a continuous enchantment through excess and abundance. If one were to stop and think about all of the upstream and downstream consequences of a trip to the mall, that enchantment would quickly dissipate. Another means of enchantment that is not found in a physical store is with the creation of subscriptions to various services. The automation of subscriptions satisfies the convenience factor that consumers are looking for, while the *type* of subscription (i.e. replenishment, curation, and access) satisfies the need for continuous enchantment, regardless of the cost to both the individual and the environment in terms of packaging. According to the U.S. Department of Commerce, consumers spent \$513.61 billion on online shopping purchases in 2018 (<https://www.digitalcommerce360.com/article/us-ecommerce-sales/>). This is only expected to increase as more and more services and products are offered online to better accommodate consumers looking for more convenient ways to consume.

The same thread of convenience can be linked to food packaging, which was greatly affected by safety and tampering concerns in the 1970s. One such example was the ‘Tylenol Scare’ in Chicago, where bottles of Tylenol capsules were found to have traces of poison added *after* distribution from the factory (Kaplan, 2005). Upon recalling all potentially contaminated bottles, *Johnson & Johnson* (owner of the Tylenol brand) compensated the families of nine individuals who died from poison ingestion in an effort to silence voices of concern from the public and news sources that carried the story (Kaplan, 2005). The company was the first to respond to Title 21 of the Food and Drug Administration’s Federal Food, Drug, and Cosmetic Act, mandating tamper indicative packaging (Kaplan, 2005). This increased the amount of packaging required from manufacturers to protect and seal their goods from outside tampering (Canal, 2013). With this added measure of safety, individuals started to “look” for additional packaging as an indication of a product’s “newness” or at least an indication of a product’s “safety.” Therefore, “packaging is one of the extrinsic attributes that consumers tend to apply when relevant intrinsic attributes cannot be evaluated before the purchase of the food product” (Koutsimanis et. Al, [2012:270]). These attributes include, but are not limited to, “transparency packaging,” “feeling packaging,” “information on packaging,” and “shape of packaging” (Koutsimanis et. Al, [2012:271]). In addition, demands for food packaging involve longer shelf-life, which means more packaging with “selective barrier properties in combination with high transparency, good print quality, etc.” (Lange & Wyser, [2003:151]). However, while packaging is seen as a way to reduce food waste, it does so at the cost of creating its own, less reusable waste. This irony glorifies both the problem and its “solution,” which becomes difficult to separate from each other. In response, packaging is constantly being improved and developed to meet the changing demands of consumers who seem to be unanimously in favor of wrapping

things up in plastic, even when it may not be totally necessary (Koutsimanis et. Al, 2012). Food packaging, like many other forms of packaging, is a technology that effectively *sells* the product it encases. The idea of convenience comes into play when individuals are selecting between the same products in different packaging. Beck's (1994) emphasis of *choice* allows consumers to select a packaging style that fits their needs but they are only *choosing* a product within a range of options that are offered to them and not actually making a *choice* that will lead to lasting changes, as the *decision* itself to control packaging is currently in the hands of manufacturers. Therefore, the "key to successful packaging is to select the package material and design that best satisfy competing needs with regard to product characteristics, marketing considerations (including distribution needs and consumer needs), environmental and waste management issues and cost" (Marsh & Bugusu, [2007:51]). Thus, the only action that consumers can make is to pick the lesser of two evils and opt for a product packaged in something other than plastic.

Plastic and waste within the arena of sports, particularly with regard to athletic training, is a less explored phenomenon. Athletes in organizations like colleges, are unlikely to be offered various exit options for treating injuries. While there were limited studies addressing this issue, a study performed by Potteiger et. al (2017) polled 442 athletic trainers (ATs) about their training room waste and use of green techniques. The study indicated that of 260 ATs, roughly 59 percent believed that the practice of athletic training produced substantial waste (1123). As a result of the waste produced, the most commonly cited types were plastics, water, and paper for administrative use (Potteiger et. Al, [2017:1121]). One trainer at an NAIA school mentioned going "through 10 to 20 cases of Flexi-Wrap every year [...] massive amounts of towels [...] spend[ing] tens of thousands of dollars on supplies every single year and three-fourths of them go right into the trash", which is likely just a glimpse into the waste generated from sports, as

NCAA Division I schools are even less restricted financially and responsible for treating their athletes by any means necessary so as to get them back in action as quickly as possible (Potteiger et. Al, [2017:1123]). While the study looked at “green techniques”, such as buying in bulk—which uses less packaging—and other assorted conservation practices, researchers found that 230 ATs did not consider how their orders were delivered, while 208 wanted their orders “shipped as fast as possible, even if multiple shipments were required,” likely involving more packaging materials to be used (1125). In contrast, those who had greater knowledge of green techniques indicated that they preferred to purchase supplies in bulk (317 ATs) and from one company to “reduce packaging and transportation [costs, distance, and time] of supplies,” which was favored by approximately 349 ATs (Potteiger et. Al, [2017:1125]). While sanitation and convenience seem to be two driving factors contributing to this excessive use of plastic, the lack of studies on this topic indicates that sports have become a field of exception, where plastic use is not something to be concerned about, especially if it means keeping athletes healthy.

Given these findings and the continued push to understand the role that humans play in environmental degradation (e.g., Oldeman et al., 2017), it is important to look at whether today’s consumers are any more aware of the ubiquity of plastic in the goods they purchase and in the amount of waste generated from their continued need for convenience, or are they simply holding to Meyer’s (2001) notion of disillusionment? Do Ritzer’s (1999) cathedrals of consumption shine more brightly than the islands of plastic floating across the Pacific Ocean? To look more closely at these questions, as well as further engage with Hirschman’s (1970) notions of exit, voice, and loyalty, I turn to a survey focused on consumers and their consumption habits.

Data and Methods

I created a survey consisting of 15-questions aimed at engaging consumers' perceptions of self-efficacy, moral considerations, intentions to act, and pro-environmental behaviors (see also Bamberg and Möser, 2007) as related to packaging. I used a ten-point Likert scale to elicit deterministic responses, intentionally not providing a “neutral” option so as to encourage respondents to make a decision regarding their level of support for each statement (for all questions, a higher response means more support for the statement, while a lower response means less support for the statement). The survey was given to students in various classes at a Western Washington University (WWU), and to individuals in workplace settings. All respondents were made aware of their human subject's rights prior to taking the survey, including confidentiality and the voluntary nature of their participation, with approval by WWU's Institutional Review Board.

In addition to questions regarding consumer habits and packaging, I asked about the amount of spending for in-store and online purchases, gender, year born, and major of respondents (a copy of the survey can be found in *Appendix B*). Responses were entered into SPSS for analytical purposes, including descriptive statistics and a factor analysis used to determine if factors might help in interpreting patterns among and across answers. *Table 1* provides the descriptive statistics for the eleven questions evaluated.

Findings

Table 1. Overview of question statistics.

Questions	\bar{X}	σ
1. I take into complete consideration how a product is packaged before I buy it.	6.15	2.52

2. I am brand loyal when purchasing clothing.	4.79	2.82
3. I believe that choices in packaging of products are outside my control.	6.03	2.31
4. I believe most US-based clothing companies try to use environmentally friendly packaging.	2.81	1.60
5. I prefer to shop online instead of doing to a store.	5.07	2.67
6. I check to see if a company is environmentally concerned before purchasing their product.	4.59	2.53
7. I prefer to do all my shopping in one location.	5.12	2.59
8. I tend to be an impulsive shopper.	5.10	2.69
9. I always bring my own bag when shopping for groceries.	7.08	2.87
10. I return plastic bags to stores to be recycled.	2.91	2.51
11. If someone was to accompany you for a week, they would come to the conclusion that you are environmentally conscious.	5.76	2.06

A total of 101 respondents took the survey. Of these, 21 reported as being male, 77 as female, and three unspecified. Most respondents were social science majors ($n = 41$), and 83 participants were born between 1995 and 2000.

Based on the recorded responses, eight of the eleven Likert-scale questions had averages at or near five, indicating a near “neutral” response that could be interpreted in a number of ways. First, that the ‘average’ is bimodal in that respondents were split in how they viewed their opinions toward plastic and shopping habits. However, the standard deviations (σ) for all these questions are less than three, so a majority of responses are between three and seven, and not at the extreme ends of the scale. A second interpretation is that these respondents were unsure of how to categorize their own opinions and habits. For example, one question asked respondents to imagine someone watching them for a week and whether that person would label them as being environmentally conscious. The mean of this question is slightly higher than five ($\bar{x} = 5.7$), with a low standard of deviation ($\sigma = 2.1$), meaning that most respondents were unsure of how someone else would view their consumption and recycling habits.

Three questions exhibited slightly more deterministic values, supporting a characteristic of Hirschman's *Exit, Voice, and Loyalty* framework (see *Table 2* below for my interpretation of the conceptual relevance of each question). The question pertaining to U.S. based clothing companies' environmental concern exhibited a low average response ($\bar{x} = 2.81$). This can be interpreted in one of two ways, first that respondents do not think most U.S. clothing companies use environmentally friendly packaging, or second, that they do not look at a company's practices before purchasing a product, and therefore may be making an assumption based on other facets of U.S. culture. Respondents also did not show support for the question about returning plastic bags to stores to be recycled ($\bar{x} = 2.91$). This indicates that they do not use plastic bags and therefore disagreed with the statement either because it did not apply to them, or that respondents used plastic bags but did not bring them back despite their concern for the environment. The latter would support the findings from Joy et. al's (2012) survey, where young consumers exhibited a double standard for sustainability, where individuals expressed a concern for the environment in some instances but not in others. Lastly, respondents answered the question about bringing their own shopping bags for groceries relatively high ($\bar{x} = 7.08$). This indicates that they exercised individual choice to consciously make a change that aligned with their beliefs or concerns, and therefore, to Hirschman's idea of *exit*, as they removed themselves from the paper and plastic bag industry, which may not be in alignment with their personal beliefs or morals.

Looking more closely at how these questions fit into my theoretical framework (*Table 2*), I analyze how each question exhibits *exit, voice, or loyalty*. Beginning with *exit*, which is the economic withdrawal of a consumer from a particular store or market, all questions were more directly tied to considerations about packaging (except for the question regarding using one's

own bag), with respondents not showing a strong indication of thinking about packaging at the time of purchase or giving much thought to upstream packaging decisions. This might be a situation in which consumers feel they have little choice in the matter or exhibit a sense of loyalty to a company, or more narrowly, to the act of consumption.

With regard to the questions measuring levels of *voice*, the average response to these questions indicated that individuals had little preference to shop either online or in a physical brick and mortar store (both of these questions had an average response around five). Hirschman identifies voice as the action(s) consumers take to express their dissatisfaction directly to the company or management at the cost of walking away permanently. If individuals are willing to select how they shop, they are—if they have not already—convinced themselves that they are willing to walk away from one type of shopping, if they feel the other offers something better. Therefore, in choosing to shop in a particular way, consumers are expressing their dissatisfaction or lack of support by not shopping at that store or through a web interface. In this case, consumers are not showing a strong preference for one type of shopping, meaning that any differentiation on a subject such as which of these forms of consuming have more environmental-friendly packaging, is not being considered.

Concerning loyalty, and more specifically brand loyalty, two of these questions did indicate stronger opinions, as mentioned above. However, the typical response to being brand loyal was relatively neutral ($\bar{x} = 4.79$). Given the stronger responses to loyalty in the act of purchasing (low for thinking companies are environmentally conscious and low for returning bags to stores), this points to a possible bifurcation of the full act of consumption. Respondents are not worried about what name is on the labels of their food, clothing, etc., but also do not

believe companies are trying to make changes, nor are they themselves choosing to engage in at least one act of packaging mitigation.

Table 2. Questions with corresponding theoretical component

Question	Theoretical Component
1. Consideration	Exit
2. Brand Loyalty	Loyalty
3. Packaging Control	Exit
4. US Clothing	Loyalty
5. Online Preference	Voice
6. Company's Environmental Concern	Exit
7. One Location	Voice
8. Impulsivity	Voice
9. Own Bag	Exit
10. Recycle	Loyalty
11. External Assessment	Voice

Given that all these questions were created with packaging in mind, I decided to conduct a factor analysis to explore whether there were factors underlying the ways in which respondents were answering the questions (*Table 3*). After running factor analysis on each question, three main clusters emerged (eigenvalues > 1.0).

Table 3. Factor analysis matrix, where a positive or negative value over 0.3 indicates a relationship of some kind between question responses.

Question	Environmental	Fatalistic	Fair-weather environmental
1. Consideration	.730	.361	-.035
2. Brand Loyalty	-.266	.021	-.106
3. Packaging Control	-.450	.418	.151
4. US Clothing	-.308	.240	-.559
5. Online Preference	-.455	-.010	.339

6. Company's Environmental Concern	.732	.192	-.079
7. One Location	-.183	.464	.656
8. Impulsivity	-.352	-.449	-.002
9. Own Bag	.618	-.351	.072
10. Recycle	.347	-.463	.403
11. External Assessment	.783	.208	.051

Analyzing the factor identified as ‘environmental’ leads me to conclude that individuals who do consider how a product is packaged and believe someone watching them would label their actions as environmentally conscious, are less likely to hold a preference for where they shop and report being less impulsive when purchasing products. These individuals are also more likely to say they use their own bags and recycle plastic ones back at the store.

The second factor, which I refer to as ‘fatalistic’, involves responses in which individuals feel packaging is outside of their control while also indicating that they are more likely to shop at one location. Those responding in this manner are also less likely to recycle plastic bags or use their own bags when shopping, though they also report being less impulsive and do say they take into consideration how a product is packaged. However, these last two responses may be more about socially acceptable answers for this group than actual practices, based on how they answered the other questions.

For the third factor, I refer to it as ‘fair-weather environmental’ or in other words individuals who engage in environmentally mindful behavior but only when it is convenient for them to do so. This cluster shows a strong preference for shopping in one location, a moderate inclination to recycle bags and shop online, and a strong belief that the U.S. fashion industry is not environmentally friendly, but also demonstrates little concern for packaging or using their own bags. These are individuals who may know how to talk about environmentalism but engage

in the minimal amount of efforts to actually be environmentally conscious, as they were not likely to say whether others would perceive them as being environmentally conscious or not, relative to how they answered the other questions.

These findings offer an extension of Hirschman's (1970) *Exit, Voice, and Loyalty* to consumer experiences. In addition to the act of consumption, respondents offered insights into their levels of engagement with environmentalism. Based on this deeper evaluation, there are levels regarding what one is willing to do within a world filled with plastic, and not all are concerned with finding a solution, especially given that not everyone necessarily perceives the excessive use of plastic as a problem.

Conclusion

Through this investigation, some consumers seemed to exercise mindful shopping, recognizing that there is a deeply embedded social problem with regard to plastic packaging. However, others seemed to only recognize there was a problem at a superficial level, in which they are ultimately unwilling to change their habits or feel there is no way to change how a product comes packaged. This social perception of plastic as a packaging material that is here to stay illustrates that there are not accessible exit options for consumers to pick from that will meet both their needs for convenience, as well as the environment's needs for less loose plastic debris and more plastic collection. While plastic satisfies consumer demands for a culture obsessed with convenience, relying on it as the future's sole packaging material ignores the known consequences of its destructive nature (Canal, 2013). Applying Hirschman's theoretical framework to the arenas of fashion, food, sports, in addition to the survey findings, leads to the conclusion that while society can engage in change, it is not easy. Recognizing that there is a need for a change in packaging is a start, but actually implementing change to the scale and

magnitude needed to ameliorate this world-wide plastic problem will be difficult. Therefore, is it possible for society to change its ways, given this realization?

Solutions will require changes in habits—both from consumers and producers. Focusing on producer and corporate responsibility, one option might be to initiate “take-back” programs, which “require that companies collect and recycle a portion of their secondary packaging, such as shipping containers and outer wrapping” from consumers after purchasing one of their products (Marsh & Bugusu, [2007:51]). Another option, preceding the first, might entail source reduction of packaging from the outset, but this means that consumers will have to be willing to accept less convenience (Marsh & Bugusu, 2007). Efforts to make a more universal packaging standard also promise to reduce excess packaging, feeding into McDonough and Braungart’s (2002) advocacy for better design of products and packaging based on increased consideration of construction, deployment, and regeneration of a product from the outset of its design. Additionally, reducing the number of actors in the production chain can also serve as a means to reduce packaging and waste. With so many participants, it can be difficult to know where waste can be eliminated (Canal, 2013). Again, adhering to McDonough and Braungart’s approach to purposeful restoration and regeneration, if a product is designed to incorporate these actors, there may not even be waste to eliminate in a circular approach to manufacturing, design, marketing, and consumption (Todeschini et. al, 2017). Conversely, approaching this issue from a consumer perspective, education plays an important role in shedding light on a products’ value “by expanding their lifespan and creatively finding new uses for them,” similar to Van Dyke’s (2018) proposal of “creativity within confines,” where one finds a way to repurpose something to eliminate waste (Todeschini et. al, [2017:767]). Ultimately, if society can expect to “do better by designing better,” then both consumers and producers can expect to be well-equipped to respond

to changes within the market (Eiriz & Areias, 2008). This means that the answer to our packaging epidemic is not to create “more” but to create “better” (Phau & Ong, 2007). Without viable exit options, society runs the risk of being impeded by its very own innovations (or lack thereof). Plastic has played a helping role in product and packaging evolution, but it has also helped create a major social and environmental problem, and one that does not seem to be slowing down or changing its course anytime soon.

Plastic has become the ultimate symbol of contemporary consumer culture. Beyond the tangible packages waiting to be purchased in the store aisle, plastic tells society’s story of innovation, achievement, and design (Canal, 2013). It has become a metric of success, reflecting the decades of design oversight for a society deeply embedded in consumerism (Freinkel, [2011:139]). For many, consuming is an integral part of being a member of society, becoming a factor of identity that if one consumes more, then one is more embedded in his or her surroundings, creating a form of loyalty to larger social structures. This type of development affects how individuals think, act, and contribute to society, in addition to how they perpetuate the social affinity for plastics. Given that plastic is a technology, there is also the notion of technological determinism or momentum feeding into consumer desires as reflected by its ubiquity across markets and industries. The current lifecycle for this technology, in which the time one uses a “single-use” plastic is shortening, feeding into the notion that society accepts this inevitable “obsolescence” without protest. However, it’s not enough to create a “use” for plastic waste through alternate means than what it was designed for that only serves to beautify the mess that plastic has made, negating efforts to challenge producers in a way that would hold them accountable for their destructive actions. What is enough is the continuous exercise of consumer *choice* and the pressured *decision* of upstream producers to make resounding changes in

packaging. Gone should be the days of plastic's redundancy and excessive waste and welcomed should be an era of forward looking and considerate design.

References

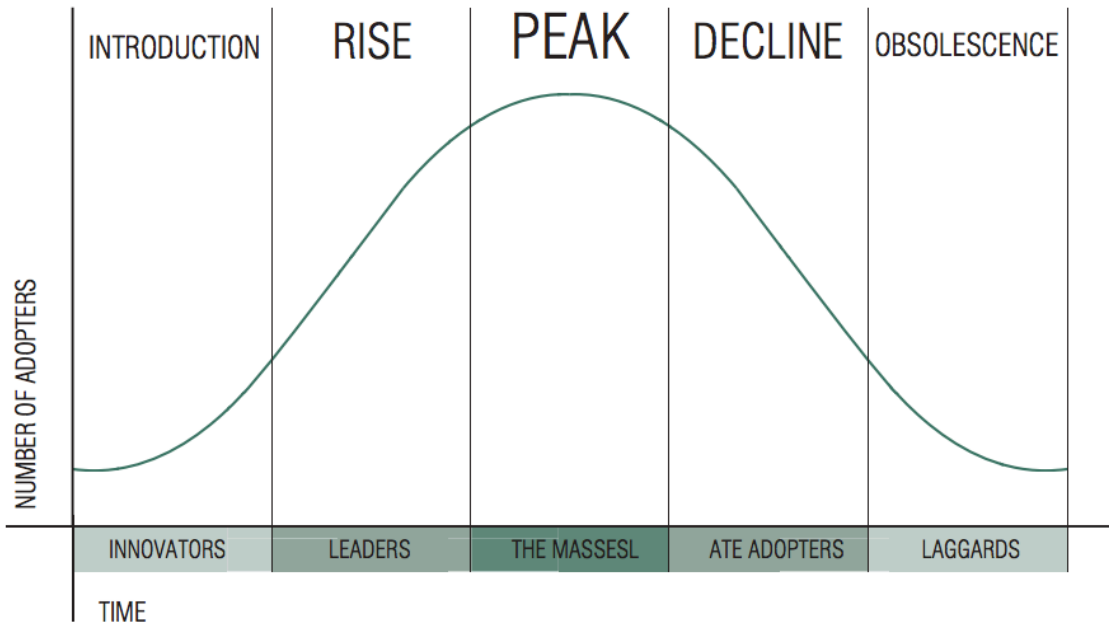
- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of environmental psychology, 27*(1), 14-25.
- Beck, U. (1999). *World Risk Society*. Polity Press, Cambridge.
- Beck, U., Giddens, A., & Lash S. (1994). *Reflexive Modernization*. Palo Alto, CA: Stanford University Press.
- Canal, A. (2013). Fashioning the Unfashionable: An Architecture of Waste.
- Claudio, L. (2007). Waste couture: Environmental impact of the clothing industry.
- Coles, R., McDowell, D., & Kirwan, M. J. (Eds.). (2003). *Food packaging technology* (Vol. 5). CRC Press.
- Eiriz, V., & Areias, J. S. (2008). Competing through cooperation in international supply networks: a case study from the clothing industry. *International Journal of Globalisation and Small Business, 2*(3), 244-261.
- Freinkel, Susan. (2011). *Plastic: a Toxic Love Story*. Houghton Mifflin Harcourt (HMH).
- Goldsmith, R. E., & Goldsmith, E. B. (2002). Buying apparel over the Internet. *Journal of Product & Brand Management, 11*(2), 89-102.
- Goldsmith, R. E., Lafferty, B. A., & Newell, S. J. (2000). The impact of corporate credibility and celebrity credibility on consumer reaction to advertisements and brands. *Journal of advertising, 29*(3), 43-54.
- Grace, D., & O’Cass, A. (2002). Brand associations: looking through the eye of the beholder. *Qualitative Market Research: An International Journal, 5*(2), 96-111.

- Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *The Journal of environmental education, 18*(2), 1-8.
- Hirschman, A.O. (1970). *Exit, Voice, and Loyalty*. Cambridge, MA: Harvard University Press.
- Joy, A., Sherry Jr, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion theory, 16*(3), 273-295.
- Kaplan, T. (2005). The Tylenol crisis: How effective public relations saved Johnson & Johnson.
- Koutsimanis, G., Getter, K., Behe, B., Harte, J., & Almenar, E. (2012). Influences of packaging attributes on consumer purchase decisions for fresh produce. *Appetite, 59*(2), 270-280.
- Lalvani, S. (1995). Consuming the exotic other. *Critical Studies in Media Communication, 12*(3), 263-286.
- Lange, J., & Wyser, Y. (2003). Recent innovations in barrier technologies for plastic packaging—a review. *Packaging Technology and Science: An International Journal, 16*(4), 149-158.
- Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of consumer marketing, 18*(6), 503-520.
- Marsh, K., & Bugusu, B. (2007). Food packaging—roles, materials, and environmental issues. *Journal of food science, 72*(3), R39-R55.
- McDonough W. & Braungart M. (2002). *Cradle to Cradle*. New York: North Point Press.
- Meyer, A. (2001). What's in it for the customers? Successfully marketing green clothes. *Business Strategy and the Environment, 10*(5), 317-330.
- Murphy, W.W. (2016). *Consumer Culture and Society*. Los Angeles: Sage.

- Oldeman, L. R., Hakkeling, R. T. A., & Sombroek, W. G. (2017). *World map of the status of human-induced soil degradation: an explanatory note*. International Soil Reference and Information Centre.
- Peterson, R. A., & Anand, N. (2004). The production of culture perspective. *Annual review of sociology, 30*.
- Phau, I., & Ong, D. (2007). An investigation of the effects of environmental claims in promotional messages for clothing brands. *Marketing Intelligence & Planning, 25(7)*, 772-788.
- Potteiger, K., Pitney, W. A., Cappaert, T. A., & Wolfe, A. (2017). Examining the environmental effects of athletic training: Perceptions of waste and the use of green techniques. *Journal of athletic training, 52(12)*, 1121-1130.
- Ritzer, G. (1999). *Enchanting a Disenchanted World*. Thousand Oaks, CA: Sage.
- Simmonds, G., & Spence, C. (2017). Thinking inside the box: How seeing products on, or through, the packaging influences consumer perceptions and purchase behaviour. *Food Quality and Preference, 62*, 340-351.
- Ten Eyck, Toby. (2015). *Reflections from the Bookshelf: Sociological Concepts in Literature*. Cognella, Inc. Szaky, Tom. *The Future of Packaging: from Linear to Circular*. Berrett-Koehler Publishers, 2019. Pg. 8.
- Van Dyke, A. (2018). *A Zero Waste Life*. Sydney, Australia: Penguin.

Appendix A

The Fashion Cycle



Canal, A. (2013). Fashioning the Unfashionable: An Architecture of Waste. Pg. 62.

Appendix B

Plastic Among Us: Online and In-person shopping

For the following statements, please rate your agreement on a scale of 1 to 10 with 1 being completely disagree and 10 being completely agree.

1. I take into consideration how a product is packaged before I buy it.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

2. I am brand loyal when purchasing clothing.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

3. I believe that choices in packaging of products are outside my control.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

4. I believe most US-based clothing companies try to use environmentally-friendly packaging.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

5. I prefer to shop online instead of going to a store.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

6. I check to see if a company is environmentally-concerned before purchasing their product.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

7. I prefer to do all my shopping in one location.

1	2	3	4	5	6	7	8	9	10
Completely disagree			Neither agree or disagree				Completely agree		

8. I tend to be an impulsive shopper.

1 2 3 4 5 6 7 8 9 10
Completely disagree Neither agree or disagree Completely agree

9. I always bring my own bag when shopping for groceries.

1 2 3 4 5 6 7 8 9 10
Completely disagree Neither agree or disagree Completely agree

10. I return plastic bags to stores to be recycled.

1 2 3 4 5 6 7 8 9 10
Completely disagree Neither agree or disagree Completely agree

11. If someone was to accompany you for a week, they would come to the conclusion that you are environmentally-conscious.

1 2 3 4 5 6 7 8 9 10
Completely disagree Neither agree or disagree Completely agree

During an average week, how many items do you purchase online? _____ What is the average amount spent for an online purchase? _____

During an average week, how many items do you purchase in a store? _____ What is the average amount spent for an in-store purchase? _____

Male _____ Female _____

Year Born _____

Major _____