Coffee and Consumerism: Analyzing the Effects of Nudge Variables to Produce Sustainable Customer Decisions

by

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Abstract

In an effort to further understand how marketing nudges can help close the attitude-action gap around sustainable consumerism, this study uses point-of-purchase stimuli to measure behavior changes. Specifically, the study aims to understand how stimuli affect consumer decisions to ask for a for-here or to-go cup at a coffee shop. To-go cups contribute to the growing plastic crisis, a harmful throw away culture, and greenhouse gas emissions. The two experiments conducted analyze (1) the effects of social norms within the coffee shop on sustainable decision-making and (2) the effects of environmental factors, specifically concreteness and calls to action on sustainable decision-making. The study (N=693) finds that environmental factors are more effective in changing behavior than social norms. Within social norms, the 50% condition is the most effective due to strong believability and little diffusion of responsibility. In Experiment 2, the study finds that concreteness of messaging is more effective in creating behavior changes than calls to action. The study also finds that those who have medium levels of environmental consideration are most likely to change their behavior when presented with stimuli. This research aims to find effective methods to decrease consumer created waste at U.S. coffee in the backdrop of American coffee culture.

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Introduction

The discrepancy between consumer behaviors and consumer beliefs is not a newly documented phenomenon within the field of psychology and marketing. This cognitive discrepancy is labeled as the action-attitude or value-action gap: a gap between what our beliefs are and what our actions are (Lane, 2006). By nudging decision-makers through stimuli at point of purchase, however, a choice architect can create situations where behaviors and beliefs are more closely aligned (Thaler, 2008). Further, a choice architect can even create outcomes from choices that the decision-maker does not strongly believe in (Thaler, 2008). These psychological forces in marketing are ones I plan to explore in this study. Through the lens of consumerism and sustainable decision-making around single-use plastics, I will examine how factors in a coffee shop influence consumer to ask for a 'for-here' cup (the reusable, "sustainable" choice) rather than a 'to-go' cup (the single-use plastic, "unsustainable" choice).

In this study two experiments investigate the nudges consumers respond to: the first experiment examines the effects of social norms within a coffee shop and the second examines the effects of environmental factors. The current landscape of coffee shops and sustainability efforts is sparse, but existent. Some coffee shops offer small price discounts (around 10¢) if consumers bring personal cups (Starbucks Corporation, Customer Service). A large majority of coffee shops provide for-here cups, but at most chain stores, to-go cups are the default option. On the consumer side, convenience has become an increasingly strong trend in the consumer product segment, with easy-to-eat, on-the-go products becoming increasingly popular (Watrous, 2019). Packaging convenience, specifically, has led to the rise of single-use plastics in consumer-packaged foods (Royte, 2019). Coffee shops are a prime example of this: with a plastic cup, the consumer has low convenience costs as they can take their coffee to-go, drink it anywhere, and throw their cup away once they are

finished. Additionally, while information on climate change and plastic pollution is plenty, for many consumers, the news they read about the climate crisis or waste production are seemingly far from the reality of their everyday (White, 2019). Together these factors (the coffee shop environment, the increase of plastics due to demand for convenience, and a lack of understanding around environmental issues) influenced the creation of the following study.

This study aims to shed light on methods which affect the decision-making of coffee shop customers most effectively. By examining how social norms, environmental concreteness, and calls to action affect decision-making processes, this information can be utilized by coffee shops in order to decrease their own waste production. Through lab-experiments that test the effects of stimuli in real time on participants, data can be collected on the differences in efficacy between experiments and the conditions within each experiment. This study also presents discussion of results, including limitations and applications in marketing, and areas for further research.

Background

In order to gain context for the undertaking of this study, the assumptions it relies on, and the potential decision-making implications, a few areas of groundwork will be examined. These include understanding of how single-use plastics contribute to environmental degradation, what consumer beliefs are around ethical consumerism and how they differ by demographic, and current coffee-culture in the United States.

Environmental Impacts of Single-Use Plastics

The excess usage of single-use plastics affects not only the ecosystem, including our wildlife and oceans, but also contributes to greenhouse gas emissions and climate change. A report by the Center for International Environmental Law estimates that annual CO2 emissions from plastic production could grow to 2.8 billion tons by 2050 (CIEL, 2019). Demand, the report argues, is only increasing. Currently, plastics demand is at around 300 million tons of plastic each year (Earth Day, 2018). However, by 2050 this figure is expected to more than double, and by 2100 the figure is expected to be above 1,200 million tons per year. This drastic rise can be attributed to emerging markets such as Asia, the Middle East, and Africa, as they become key consumers of single-use plastics (CIEL, 2019). Almost all pieces of plastic begin as a fossil fuel and greenhouse gases are emitted at each stage of the plastic lifecycle: extraction of the fossil fuel, plastic refining, managing plastic waste, and its impact on our oceans, waterways, and landscapes (UNEP, 2018). While plastic pollution is a focus of much environmental attention, greenhouse gas emissions that come from petroleum-based plastics also have considerable determinantal effects on the environment (Laville, 2019).

Over 78 million metric tons of plastic packaging is produced globally each year, with a mere 14% recycled (Royte, 2019). 9 million tons of plastic end up in our oceans every year and make up 80% of all marine debris, from deep-water sediments to surface water pollution (Mallos, 2019, Trash

Free Seas). This pollution threatens marine species who ingest microplastics or entangle themselves in plastic debris; in fact, plastics have been found in more than 60% of all seabirds and in 100% of sea turtles (Mallos, 2019, Plastics in the Ocean). Most plastics do not bio-degrade, but rather break down into smaller fragments known as microplastics. Marine animals mistake microplastics as foods and ingest them or ingest them accidentally because of their miniscule size (Mallos, 2019, Plastics in the Ocean). Some plastics in particular, such as polystyrene foam ("Styrofoam") take thousands of years to decompose (EPA, 2019). In this centuries-long decomposition period, plastics contaminate oceans, ecosystems, block waterways, clog sewers, provide breeding grounds for pests, and increase transmission of diseases (IUCN, 2018).

Policy initiatives around single-use plastics have been increasing as the issue takes center stage within the pressing topic of climate change. In October of 2018, the European Parliament approved a ban on single-use plastics that will come into effect in 2021 (Krischke, 2019). The proposal calls for banning single-use plastics for items for which alternatives exist, such as plastic plates, cutlery, straws, cups, and cigarettes. These types of bans have occurred internationally on different levels. In South Korea, an initiative has launched to reduce waste from stores to zero percent by 2027 (Krischke, 2019). Island nations, like Vanuatu and the Republic of Seychelles, have begun to ban Styrofoam boxes, plastic bags, plastic bottles; these nations' reliance on the sea for tourism and resources makes the threat of climate change even more urgent. Bans around specific types of plastics, such as plastic bags, have begun to take hold as well, with states like California, cities like Seattle, and internationally in developing areas like Tamil Nadu, Taiwan, Kenya, and Malaysia creating policy initiatives and long term goals to end the production and use of specific items (Krischke, 2019). However, these measures are recent, and most governments have still not taken action against single-use plastics.

Alterative 'bio-plastics' have also become more popular as understanding of the plastic crisis grows. Bioplastic is made using plants or other biological materials instead of petroleum. It can be made using sugars from corn or sugarcane that can be converted into polylactic acids (PLAs) which are then used in food packaging (World Centric). PLA is a cheap and common source of bioplastic, reduces the need for petroleum, and releases carbon back into the atmosphere that previously existed due to the plant-based nature of the product (World Centric). Compostable plastics are also derived from renewable plant-based starches, cellulose, soy protein, etc. These different types of materials are converted into compostable plastic resins that are then converted into the everyday single-use plastic items (Gibbens, 2018). These plastics can be composted through traditional composting channels. However, these products face the additional use challenge that they must be composted properly, and not thrown into landfills, for the positive environmental effects to occur (Gibbens, 2018). Additionally, these products are much more expensive to create than their single-use plastic counterparts and are currently used in very niche markets (Gibbens, 2018).

The age-old solution for our increased use of plastic is recycling. Since 1990, domestic recycling and composting rates domestically have increased greatly from 16% to 35% in 2015. However, plastics make up for a very small portion of total recycling in the United States. While 45 million tons of paper and cardboard are recycled every year, only 3.14 million tons of plastic are recycled, according to 2015 EPA estimates. In the same year, 34.5 million tons of plastic were generated (EPA, 2019). This is a recycling rate of less than 10%: thus, while many plastics are recyclable, most plastic generated is not recycled. For coffee cups specifically, even paper coffee cups have a plastic lining, a fine film of polyethylene which makes the cups liquid-proof but is difficult and exprensive to reprocess (Albeck-Ripka). For this reason, most waste management facilities treat cups as trash, both paper and plastic (Albeck-Ripka). Thus, the need for strong

policies around reducing the use, demand, and generation of single-use plastics is necessary in order to decrease greenhouse gas emissions and reduce pollution in oceans and ecosystems.

Consumer Driven Changes in Buying Habits

Consumers have shown their buyer power through boycotts throughout history: boycotting alcohol and pushing for Prohibition, boycotting Nestle due to their infant formula scandal, boycotting BP after the 2010 oil spill, and even more recently, pushing for paper or metal straws rather than plastic straws (Ethical Consumer, 2019). Many industry trends in the food and drink segment stemmed from a change in beliefs about foods. For example, the uptick in organic and non-GMO foods rose from a growing awareness about pesticides and negative health beliefs around GMOs. In 2008, $20 billion was spent domestically on organic foods (Statista, Organic). In 2018, this figure more than doubled at $48 billion (Statista, Organic). Other large consumer-driven trends in the food and drinks segment include convenience packaging, low-calorie options, and low-carb options.

Today, more than ever, consumers have started paying attention to where the products they purchase come from and the social and environmental consequences of their purchases. Millennials today make up the largest portion of the workforce and are worth $1 trillion in consumer spending internationally (Robinson). A Gallup poll found that 67% of people aged 18-29 believe that climate change and global warming are real, man-made, and a serious threat (Robinson). The same poll also found that 73% of this age group would spend more on sustainable products than their non-sustainable alternatives (Robinson). Because of this, understanding how to decrease waste and greenhouse gas emissions is not only important for our environment, but also an important task for businesses to contend with, as younger generations gain purchasing power within the economy (Robinson). This study directly answers the question of how consumers can make sustainable choices in order to prove to businesses that environmental awareness and excess waste production

are relevant to their consumers. Businesses are more likely to change when they sense a change in the needs and desires of their customers; for this reason, consumer driven boycotts have previously been effective and will continue to be (Ethical Consumer, 2019).

Coffee Culture

Coffee is a global commodity, and subcultures have been crafted around the commodity internationally. The U.S. coffee market is estimated to be valued at around $430 billion, which includes out of home and in-home consumption, and is expected to continue to grow at 6.3% year on year (Statista, Coffee). It is estimated that 69% of Americans drink 2 or more cups of coffee a day (Evolution of Coffee Culture). While most Americans drink coffee, there is no specific or significant age correlation between coffee drinking and age (Statista, U.S. demographics). Today, coffee has a strong cultural grasp over everyday life in the United States, but historically, coffee was originally bought and sold by European traders, sourcing the beans from the Middle East and Asia (Evolution of Coffee Culture). Overtime, the drink began to become culturally engrained as it started being sold to miners in the California gold rush and became a staple in the home (Evolution of Coffee Culture).

Coffee shops, coffee houses, and cafes have become a significant "third place" for many societies (Oldenberg, 2013). First penned by sociologist Ray Oldenburg, a "third place" is a setting in which people from diverse backgrounds come together to expand each other's understanding of the world: a place for community to form (Oldenberg, 2013). The concept is a correction to Freud's contention that the home and the workplace are the only two key areas to build emotional wellbeing (Butler, 2016). Oldenburg, rather, suggests that while the home (the first place) and the workplace (the second place) develop emotional wellbeing, they are inadequate to develop community or broaden the perspective of an individual (Oldenberg, 2013). According to Oldenburg, café's allow people to "hang out": to simply be with others without infringing on one's personal time or space.

Oldenburg writes, "when friends meet at a third place, they may arrive and depart as it pleases them individually" (Oldenberg, 2013, pg. 12). For a long time, cafés functioned as this third place, especially in European societies, but increasingly in the United States as well (Bulter, 2016). However, as convenience becomes a more pressing need for consumers, new technologies like plastic to-go cups, mobile ordering, and 'drive thru's become the norm at coffee shops, decreasing the function cafés serve as third places. As virtual spaces like social medias become the new "third places", Oldenburg underlines the importance of face-to-face interaction in a society that is getting less and less of it (Oldenberg, 2013). For this reason, for-here cup choices at coffee shops have the potential to affect more than environmental outcomes; moving to a for-here cup culture can also bolster the coffee-shop as a third place in societies, creating a space to exchange ideas with a more diverse array of individuals.

In 1971, Starbucks opened its first store in Seattle's Pike Place Market. Today, the international chain has over 20,000 stores (Starbucks Company Timeline). Starbucks and other chain coffee shops such as Caribou Coffee, Peet's Coffee & Tea, and The Coffee Bean & Tea leaf have grown exponentially since the 1970s (Thomson, 2020). However, more recently, there has also been a rise in local coffee shops, with independent café's netting $12 billion in revenue in 2017 (Evolution of Coffee Culture). Together, the rise in coffee shop culture in the United States, and specifically in urban areas, has created a coffee subculture that has made buying a cup of coffee a key part of many people's daily routine within the United States.

Research Statement

The detrimental effects of single-use plastics, alongside the growth of coffee culture, has made understanding consumer choices around 'for-here' and 'to-go' cups increasingly important. Since both paper-cups and plastic cups at coffee shops have plastic components, and most plastic in the United States is not recycled, the waste created by coffee chains, like Starbucks, has large negative effects on the environment. In order to offset a portion of this plastic waste from to-go cups, for-here cups are a preferred alternative. While for-here cups use water for cleaning, the detrimental environmental effects of water usage are far lesser than that from the production of and waste from plastics. In order to understand how nudge variables can alter consumer behavior at point-of-purchase, this study will test both the effects of social norms and environmental factors. The study does not make the assumption that customers at coffee shops completely understand the negative effects of plastic nor does it make the assumption that consumers aim to make sustainable choices. Instead, it relies on the assumption that consumers will make choices that maximize their utilities and preferences.

This study aims to answer the following research questions:

1. How do differing levels of social norms within a coffee shop affect sustainable decision-making by consumers?
2. How does concreteness of environmental knowledge alongside calls to action affect sustainable decision-making by consumers?
3. How do moderating effects, specifically previously held levels of environmental importance, affect sustainable decision-making by consumers?

While many coffee shops and institutions have begun to realize the importance of decreasing plastic waste, understanding the most effective methods to nudge consumers into environmentally conscious decisions will be key to advancing these initiatives. Some of the current initiatives take the

form of discounts for bringing a personal cup to coffee shops, labeling garbage-cans as 'Landfill' instead of 'Trash', placing stickers on paper towel to remind users that the paper comes from trees, and offices offering reusable mugs for employees to take to their desks. However, with greater research, these initiatives can become more targeted and effective, eliminating throw-away culture and allowing corporations to help consumers make more sustainable choices. Additionally, other institutions, like non-profits and governmental bodies, can use this information to push consumers away from waste-creating choices and towards greener decisions through information campaigns and nudges at point of purchase.

Theoretical Framework

This study examines three existing theories that examine how choices are made. The first is the theory of planned behavior, the second is the attitude-action gap, and the third is nudges in marketing. Together, these models and theories describe the framework in which behaviors and actions are linked and how beliefs lead to specific actions.

Theory of Planned Behavior

Icek Ajzen coined the theory of planned behavior (TPB) in his paper "From Intentions to Actions: A Theory of Planned Behavior" in 1991. His model stems from the theory of reasoned action, which predicted an individual's intention to engage in a specific behavior (Ajzen, 1991). However, TPB adds onto this model by going past only an evaluation of the risks and benefits of behavioral outcomes. The TPB model, rather, explains the causal link between values, beliefs, attitudes, intentions and behavior. The model argues that when given a behavioral choice, an individual considers alternatives and assesses consequences of each path based on their existing beliefs in order to make a decision (Ajzen, 1985). Ajzen outlines three belief types that act as indicators to the actual behavior chosen: behavioral beliefs, normative beliefs, and control beliefs. Behavior beliefs are beliefs related to the consequences of certain actions (LaMorte, 2019). Normative beliefs are perceived expectations of others, or beliefs underlying the subjective norm (LaMorte, 2019). Control beliefs are actions or effects than an individual believes could be influenced to change behavior (LaMorte, 2019). The TPB states that behavioral achievement is dependent on both motivation (intention) and ability (behavioral control). Intention is product of three processes: behavioral attitudes, social norms, and perceived behavioral control (Ajzen, 1991). When the behavior seems enjoyable and has positive consequences, is supported by peers and society, and the individual performing the action feels in control and capable of performing the

behavior, this leads to stronger intentions and thus a higher probability of completing the behavior (Ajzen, 1991). In the TPB, beliefs shape intentions, and intentions lead to behaviors (Ajzen, 1985).

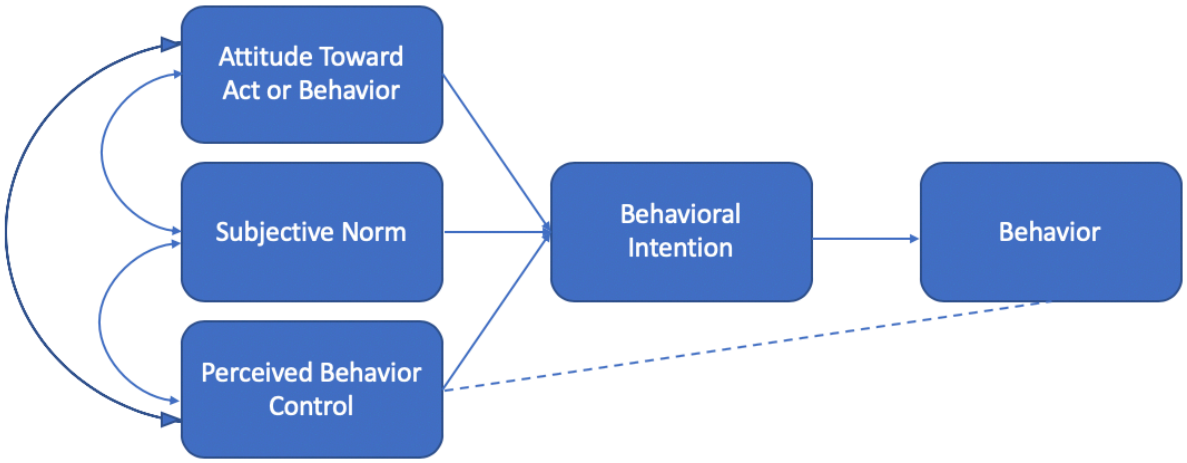


Figure 1: Theory of Planned Behavior, visual model

Attitude-Action Gap

The attitude-action gap (also known as the value-action gap, belief-behavior gap, or intention-behavior gap) is the dissonance that occurs when attitudes do not correlate with actions (Hume, 2010). This gap has been specifically observed around environmental values and actions. Usually, attitudes have a strong correlation with behavior, but with environmental attitudes, the opposite often occurs (Hume, 2010). There is increasing evidence that the public is aware of climate change, pollution, and other environmental risks. However, even groups who note in surveys that environmental attributes are increasingly important for them in purchasing or brand decisions still do not always make sustainable consumption decisions (Carrington, 2010). While there are many reasons for this dissonance, chief among them are an excess of information, social norms, and the growth of 'throw-away' culture. this study does not aim to understand the reasons for this gap (Hall, 2017). Instead, it will examine how institutions can incentivize consumers to overcome this gap.

Choice Architecture

Choice architecture, a concept coined by Thaler and Sunstein, examines the different ways to present a choice to a decision-maker, and shows that what is chosen is often dependent upon how the choice is presented. Choice architects, like regular architects, have significant but underappreciated effects on the behaviors of choice-makers (Thaler, 2008). As we sometimes don't see the logic behind how homes and buildings are organized, we often do not see the logic behind how choices are presented. However, choice architects have the power to alter decision-making through presentation of choices, information provided on choices, the structure of the choices, and more (Thaler, 2008). Thaler and Sunstein's book, "Nudge: improving decisions about health, wealth and happiness" argues that there is no "neutral" choice architecture and that every way a choice is presented will influence how decision-makers choose from an array of options. While this research was first applied to public policy, its effects in management and marketing have been well documented. Johnson et al. in the paper "Beyond nudges: Tools of choice architecture", examines how nudges, when applied to marketing, can be split into two distinct categories. The first category includes tools used to structure the choice task and the second is tools used in describing choice options (Johnson, 2012). Both of these sets of tools can affect the way in which decisions are made in different tasks (Johnson, 2012).

There are three main domains to apply nudge techniques in marketing: environmental decisions, financial decisions, and eating decisions (Johnson, 2012). Decisions regarding the environment include energy consumption, water usage, land usage, and climate change issues. Johnson notes that while economic solutions to decision-making around environmental issues have been attempted, "the psychological biases that are a barrier to adoption make environmental issues a domain where behavioral changes" are more effective than financial incentives (Johnson, 2012). Additionally, another domain that Johnson focuses on is eating and drinking. While individuals

spend considerable money and time on eating behaviors (dieting, cooking, eating out), most of these behaviors occur without conscious thought (Johnson, 2012). However, Johnson notes that the average person makes 200 to 300 decisions regarding food consumption per day: these habitual decisions are difficult to change, even in light of further knowledge and understanding of health and nutrition (Johnson, 2012). This can be seen clearly in daily life: although there are well-documented and widely known issues with fast food, fast food sales continue to rise (IBIS World, 2020). Mindless eating can also be seen through a second example: at pizza shops, an all you can eat buffet decreases the quality of the food but increases the quantity one will, on average, eat of it (Wansink, 2009). Consumers in this situation are more likely to eat more and enjoy the food less due to the lack of "healthy heuristics" that interrupt their habitual decision-making processes (Wansink, 2009). Due to the sticky nature of food and drink choices, they are a key area to study the effects of nudges on consumer decision making.

Literature Review

Decision-making and consumerism choices have been well documented in the relevant marketing and sustainability literature. More recently, sustainability literature has taken center stage as issues around climate change and pollution become increasingly relevant to policy makers and individual consumers, alike. This study, specifically, aims to understand sustainable choices in the food and drink category: these smaller, everyday purchases are less documented than consumer choice understanding around larger decisions (like car purchasing). However, it is these smaller decisions, that occur at large volumes daily, that have the ability to cause a ripple effect to create positive change. In order to understand the gap this study fills in current knowledge, it is key to understand what current knowledge around consumer incentives to make sustainable decisions currently looks like. Most of the studies in this niche field revolve around healthy eating decisions, organization or community-level incentives, or sustainable decisions about large purchases (such as cars or homes). In this review, I will examine the current literature in the field of sustainable consumer choices and clearly define the additional knowledge my proposed study would introduce into the literature.

Before diving into the specifics of environmental consumerism or food and drink, a larger question must be answered: how does one change consumer behavior in general? "How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework" by Katherine White is a study published in the Journal of Marketing in 2019 that creates a framework to understand how marketing can play an important role in encouraging sustainable consumption. The study pulls from marketing and behavioral science to highlight six key psychological factors that make consumers more likely to engage in pro-environmental behaviors. These factors are (1) social influence, (2) habit formation, (3) individual self, (4) feelings & cognition, and (5) tangibility. For this study, the factors from this paper that I plan to draw on most heavily are habit formation, feelings &

cognition, and tangibility. Habit formation plays a key role in food and its relation to human decision making. Dietary behaviors are, in large part, the consequence of habitual, automatic responses to contextual cues and previous behaviors; this system 1 thinking often lacks logical decision-making processes (Cohen, 2012). Making 'for-here' cups habitual is a challenge as a cup of coffee is not a large purchase for consumers and is oftentimes a part of their everyday routines (i.e.: drive thru coffee before work in the morning). Additionally, feelings & cognition and tangibility directly influence the 'concreteness' variable that is tested in this study. By decreasing the level of abstraction of the problem of plastic pollution, feelings of responsibility or even guilt can be created, increasing the tangibility of the issue and bringing it to the forefront of the consumers mind. While this study creates a framework to think about sustainable marketing, it does not test this framework in an empirical method, which the proposed study plans to do (White, 2019).

The following study conducted in Hong Kong by Kaman Lee, "The Green Purchase Behavior of Hong Kong Young Consumers: The Role of Peer Influence, Local Environmental Involvement, and Concrete Environmental Knowledge" was published in the Journal of International Consumer Marketing. This study focuses on purchasing behavior, and more specifically, the factors that influence green purchasing behaviors. The study analyzes the contextual and individual factors that affect green purchase behavior in young consumers (N=6,010) in Hong Kong. Using a survey and hierarchical regression analysis, the study shows that peer influence, local environmental involvement and concrete environmental knowledge are the top three factors that affect green purchasing behavior. In the study, peer influence was tested separately from parental influence. Respondents were asked to note how much they learn about environmental issues from their peers, and similarly for parents. Concrete environmental knowledge measured if respondents understood how to recycle or could define terminology like "hybrid technologies". The current study will test similar variables that are operationally defined differently: however, Lee's experiments

show a baseline that both of the variables tested in this study have shown to be significant and positively correlated with increases in green buying behavior (Lee, 2010).

Narrowing into how consumers make decisions around food, Jessica Aschemann-Witzel published a piece in the International Journal of Consumer Studies which examines young Danish consumer attitudes towards organic products and their in-store food choices. The study, published in 2014, provides a framework for intentions and behaviors and applies a qualitative research approach to the key question of the study. The study looks at the "why" and "how" of consumer behavior and uses interview-based methodology to examine consumer thought process while shopping. In this study, respondents' thoughts during point-of-purchase are recorded and analyzed through coding mechanisms. The results of these interviews show that price and quality considerations are especially taken into account when observing organic vs. conventional product options in the supermarket. In this experiment, consumers make price trade-offs for sustainable options. The study also underlines that young Danish respondents came into stores with two key factors affecting their considerations: their previously held moral beliefs around organic produce and their household members' preferences on organic foods. The concept that previously held moral beliefs around sustainability affect decision-making is one I plan to explore through environmental consideration moderation effect. The large limitation of this study is that it does not quantify how many in-store considerations occur, just gives insight into the "why" and "how" of decision making. This study is one of the few that addresses point-of-purchase and in-store decision making rather than out-of-store insights or beliefs consumers cultivate within their personal environments. However, this study examines organic food from the perspective of food trends and health standards (e.g. organic baby foods are healthier for infants), rather than sustainability or community-building (Aschemann-Witzel, 2014).

Another study in the vein of food and ethics in decision-making is from Belgium and focuses on coffee purchasing in stores. The study, published in the Journal of Consumer Affairs, titled "Do Consumers Care about Ethics? Willingness to Pay for Fair-Trade Coffee", was conducted by Patrick de Pelsmacker et al. It analyzes consumers' buying behavior and its inconsistency with consumers attitude towards ethical products. The study found that the average price premium consumers were willing to pay for the ethical choice (fair-trade coffee) was 10%, which is inconsistent with current pricing on the Belgian fair-trade coffee market (which presents a 27% premium for the fair-trade label). The study further found that "Fair-trade lovers" were more idealistic and less of a conventional customer, and aged between 31-44 years, while "Fair-trade likers" were more idealistic as well, but socio-demographically not significantly different from the average consumer. While this study examines coffee, it looks at coffee sold in stores rather than at coffee shops. Additionally, the connection (or lack thereof) between "Fair-trade lovers" and the socioeconomic and demographic labels is interesting: research shows younger and educated consumers are more likely to indicate an awareness of ethical issues, but this attitude does not transfer to decision-making (de Pelsmacker, 2005).

The study "Sustainable Food Consumption: Exploring Consumer 'Attitude-Behavioral Intention' Gap" by Vermeir et al., published in the Journal of Agricultural and Environmental Ethics in 2006 examines the well-established attitude-behavior gap in sustainable consumerism, specifically around sustainable dairy products. Key findings of this study included low perceived availability of sustainable products which explains why intentions to buy remain low, although attitudes towards sustainability remain positive. The study also finds that social pressure from peers predicts intentions to buy but leads to more negative personal attitudes. This type of externally motivated behavior change is shorter term and less powerful than internally motivated behavior changes, which manifest more positive personal attitudes. The study follows the theoretical

framework of decision making including individual and situational determinants and decision-making processes. It uses the methodology of surveys and experimentation, following 456 young consumers from Belgium (citing young consumers as a key demographic of "consumers of the future") and uses a questionnaire about dairy products. This study falls into the arena of food consumption that the current study also falls into, but more closely examines dairy products in stores, rather than coffee shops which the current study focuses on (Vermeir, 2006).

Social norms and peer influence are major components in ongoing research related to sustainable purchasing habits. Peer influence can be especially impactful on younger audiences. "Peer influences on college drinking: A review of the research", conducted by Borsari et al., provides insight into how student behavior changes when given accurate information about peers' drinking habits. The review of research finds that the collegiate peer environment contributes to high-risk alcohol use by way of direct influences, modeling, and perceived norms. Specifically, perceived social norms make excessive alcohol use on campuses appear more common than they actually are. Further, both the direct peer influence (more commonly known as "peer pressure") and indirect peer influence (general sentiment about social norms) consistently predicts personal alcohol usage in youth. Social norms are a powerful force in changing behavior, especially in youth, as this study focuses on (Borsari, 2001).

Another key study in the space of social norms within communities was conducted by Goldstein et al on environmental conservation behaviors in hotel rooms. "A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels" examines the effectiveness of signs requesting hotel guests' participation in environmental conservation programs. The study found that appeals to descriptive social norms ("the majority of guests reuse their towels") proved superior to altering behavior than appeals to environmental protection ("help us save water"). Further, the normative appeals were most effective when describing specific group

behavior in the setting that most closely matched the participant's immediate situation ("the majority of guests *in this room* reuse their towels"). This slight language difference makes these "provincial norms" more impactful for the target hotel guest. This outcome affected industry standards; hotels moved from using environmentally focused language to social norm-focused language to alter behavior. Experiment 1 (N=1,058) and Experiment 2 (N=1,595) both used qualitative variables to alter the conditions participants were exposed to; in these field experiments, Goldstein et al were able to measure how guests would realistically react to stimuli in their environment. Overall, the study sheds light on the importance of creating close communities through wording of social norms, which was found to be crucial to altering consumer behaviors (Goldstein, 2008).

Shifting focus towards plastic usage, the paper "Community behavior and single-use plastic bottle consumption" by A Khoironi et al examines single-use plastics. It investigates the quantity of single-use polyethylene terephthalate (PET)-based plastic bottles and how communities are managing them in the waste stream. The data examines households and local companies that work in plastic waste collection and shows how much different households use single-use plastics. The results show that almost 80% of households used one to four plastic use bottles each day. A more important finding, however, was that the use of single-use plastic bottles is highly influenced by the behavior of the local community in plastics consumption. This study was conducted in Asia, making specific consumer findings difficult to compare to consumers in the United States. However, the findings around single-use plastics and the social norms around them allow for an interesting observation that single-use plastics are part of a growing 'throw-away' culture that is especially relevant in developing countries but is also prevalent in the United States. Not many papers examine single-use plastics singularly, as in the sustainability sphere, pollution is a less-studied idea than larger carbon emitters such as transportation or animal agriculture. However, this study's focus

on single-use plastics and its community-level methodology makes it interesting as a point of comparison to the current study (Khoironi, 2019).

Together, this sampling of papers shows that while research around single-use plastics, sustainable food and drink consumption, social norms, and shifting consumer behavior is prevalent, the gap in the research exists around coffee shop culture and its relation to sustainable consumption and decision-making in terms of single-use plastics. This gap in the literature is what this study hopes to fill.

Hypotheses

By examining the existing literature as well as the theoretical frameworks this study was created on, two variables arise as the most effective and interesting to test: social norms and environmental factors. Before conducting the experiment, the following hypothesis were formed to test by experiments and measured moderation effects:

H1: Social norms will positively predict the proportion of respondents choosing for-here cups; as the magnitude of social norms presented grows, so will the proportion of for-here cup choices.

H2: Environmental factors will positively predict the proportions of respondents choosing for-here cups; as the intensity of environmental factors grows, so will the proportion of for-here cup choices. Calls-to-action will have a larger effect on the proportion of respondents choosing for-here cups than environmental concreteness.

H3: Experiment 1 (social norms) will have larger effects on the proportion of respondents choosing for-here cups than Experiment 2 (environmental factors).

H4: Respondents who report high levels of environmental consideration are more likely to change their behavior when exposed to stimuli.

H5: Educated respondents are more likely to change their behavior when exposed to stimuli.

The following hypotheses predict the effects of the conditions from Experiment 1, focusing on social norms, and Experiment 2, focusing on environmental factors. The hypotheses also predict the effects of the measured moderation effects. Specifically, H4 examines how previously held values regarding the environment affect decision-making. H5 looks at broader moderation effects and makes the hypothesis that education is positively correlated with sustainable decision-making.

Methodology

In order to test the effects of social norms, level of environmental concreteness, and the effects of calls to action, this study will encompass two experiments. The first experiment will test social norms, which, seen through Ajzen's TPB, are predicted to have strong effects on individual actions. The second experiment will test environmental concreteness and calls to action, strategies which, referenced in the literature review, have been studied to affect consumer decision-making. Both experiments will utilize Amazon Mechanical Turk for distribution and will be hosted on Qualtrics. The design of the experiment falls under Federal Exemption 3 and has been approved by the University of Michigan Institutional Review Board.[1] All respondents are above the age of 18 and are from the United States. Further, the survey focuses on participants who respond that they go to a coffee shop at least once a month to ensure the virtual situations have a realistic basis for respondents.

Experiment Design

Both experiments will follow similar designs with different conditions substituted to be measured and tested. Experiment 1, Social Norms vs. Sustainable Decision-Making, encompasses the following 3 conditions:

Condition 1	Condition 2	Condition 3
20% of our coffee shop customers get a for-here cup.	50% of our coffee shop customers get a for-here cup.	80% of our coffee shop customers get a for-here cup.

Experiment 2, Environmental Concreteness and Calls to Action vs. Sustainable Decision-Making, encompasses the following 4 conditions, structured in a 2x2 study.

[1] Exemption 3 includes research involving benign behavioral interventions in conjunction with the collection of information from an adult subject through verbal or written responses, if the subject prospectively agrees to the intervention and information collection, and the information obtained cannot identity the human subjects readily.

	Environmental Concreteness	Call to Action	
Low	To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals	*n/a*	**Absent**
High	To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually	Ask for a for-here cup instead.	**Present**

The four conditions for Experiment 2 then follow as:

1. To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals.
2. To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals. Ask for a for-here cup instead.
3. To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually.
4. To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually. Ask for a for-here cup instead.

At the beginning of the experiment, participants will view a consent form and agree to participate in the study and have their data recorded for research purposes. After this, the experiment will begin with an introduction to the virtual situation. Participants are told to imagine that they are walking into a coffee shop (such as their local coffee shop or a Starbucks).[2] This introduction also notes that the participant plans to stay in the coffee shop for around 15 minutes. This information is to control for the issue of time and convenience when deciding between a for-here and to-go cup, as participants know they will be "spending" at least 15 minutes in the coffee shop. The participants are told that they will go through four different tasks twice, and to make their decisions as they would if they were going through their regular coffee shop purchasing rituals. Next, the survey has two key control questions: the first controls for respondents who go to coffee

[2] As the largest coffee-house chain in the United States, and the first chain to aim to bring coffee house culture to the United States from Europe, Starbucks represents the most common coffee shop experience for most Americans. Because of this, it is an ideal location for participants to imagine their virtual experience taking place. Further, Starbucks, like most large chain coffee shops, has a default option of a to-go cup, but also has for-here cups.

shops regularly and the second controls for participants who are carefully reading the text within the experiment.[3]

For the first round of the experiment, a control condition will measure participants' baseline behaviors. In this round, participants will be not be shown any signage before being asked to make their decision. Then, for the second round, for each condition, the participant will see a screen of signage and make their decision. Within the experiment, multiple questions are asked in order to mask the key research question. While there are four tasks that the participants are asked to make a choice for, only task 2, "What type of cup would you like?" is analyzed for this experiment. Along with each choice, pictures are also presented (Appendix 1). For each condition, the goal *N* value is 100. After the control round of the experiment was completed, participants were told that they would go through another round of decision-making; however, for the second round they would have to read signage with information prior to making their choice.

Control Round

Decision to Make	**Choice 1**	**Choice 2**
What type of drink would you like?	Tea	Coffee
What type of cup would you like?	**For-here**	**To-go**
What snack would you like?	Savory	Sweet
Where would you like to sit?	At a table	At the bar

Condition Round

Decision to Make	**Signage Before Decision**	**Choice 1**	**Choice 2**
What type of drink would you like?	Tea is an ancient Asian drink with deep historical roots.	Tea	Coffee
What type of cup would you like?	***<<Insert variable condition here>>***	**For-here**	**To-go**
What snack would you like?	The sweet snacks are made in house while the savory snacks are shipped in.	Savory	Sweet
Where would you like to sit?	You could meet more people at the bar while you would not meet new people at your table.	At a table	At the bar

[3] If respondents noted that they either do not go to coffee-shops at least once a month or they responded incorrectly to the attention check question, they were removed from the study and were not paid for their participation.

Pre-study Design

Prior to the final experiment, to assess if the chosen variables were significant enough to be tested, a pre-study was conducted. The main aims of the pre-study were to understand (1) what levels of social norms seemed believable to respondents, (2) whether the social norms experiment should utilize percentages in terms of for-here cups or to-go cups, and (3) to pilot variables to establish significance. The 10 variables tested in the pre-study each had an *N* value of 10, with 100 total responses.

Final Experiment Design

From the pre-study, it was found that using "for-here" verbiage was more effective than using "to-go" verbiage, but the percentage differences between different levels of social norms (20%, 50%, and 80%) stayed constant between the two options. Additionally, from the pre-study, the three social norms conditions were set to 20%, 50%, and 80%. Although the level of believability of these percentages differed, all remained reasonably believable to respondents from the pre-study (Appendix 2). Additionally, small verbiage changes were made to the wording of variables from Experiment 2. Specifically, in the final experiment design, the sentence "Your cup is made of non-recyclable plastic" was added to the beginning of each variable. This sentence was added to avoid the assumption that participants understood that plastic was present in their hot-beverage and cold-beverage cups.

Limitations

There are multiple limitations to the methodology used. The first is the inherent limitations that come along with lab experiments (when compared to field experiments). Lab experiments are less effective in recording and analyzing behavior when compared to field experiments as participants are not physically within the decision-making spaces (in this experiment, a physical coffee shop). However, due to logistic reasons, lab experiments were the most effective and efficient

way to gather respondents and data. In order to control, to some extent, for differences in behavior, during the introduction participants are told to imagine that they are in a coffee shop and to make decisions as they would in a physical coffee shop. Another key limitation of this methodology is that only 7 variables were tested; for Experiment 1, being able to test more than 3 conditions would paint a more accurate picture of how preferences change as social norms change. In Experiment 2, more conditions tested would allow for calls to action to be separate and attached to environmental concreteness variables. However, due to constraints in funding, only 7 variables were tested.

Results

For the following discussion of results, the 7 tested conditions are organized and abbreviated as follows, with their corresponding N-Values.[4]

1.1	**Experiment 1, Condition 1**	20% of our customers use for-here cups.
1.2	**Experiment 1, Condition 2**	50% of our customers use for-here cups.
1.3	**Experiment 1, Condition 3**	80% of our customers use for-here cups.
2.1	**Experiment 2, Condition 1**	To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals.
2.2	**Experiment 2, Condition 2**	To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals. Ask for a for-here cup instead
2.3	**Experiment 2, Condition 3**	To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually.
2.4	**Experiment 2, Condition 4**	To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually. Ask for a for-here cup instead.

N-Values	
1.1	101
1.2	100
1.3	98
2.1	98
2.2	100
2.3	98
2.4	98

The control condition found through the results of the first round of the experiment (without stimuli) displays the baseline decision making of participants. The results below are described in two ways. The first table displays the percentage of respondents that chose for-here cups and the percentage that chose to-go cups before any stimulus was added to the experiment. The second table shows how respondents changed their behavior when exposed to stimuli. There are three possible ways respondents could have changed their behavior from experiment 1 to experiment 2: they could have chosen a for-here cup in round 1 and then chosen a to-go cup, they could have not changed their behavior, or they could have chosen a to-go cup in experiment 1 and chosen a for-here cup in experiment 2. This chart combines the changes across all variables from both experiments in order to establish a baseline to compare moderation effects to.

[4] While most experiments began with a predicted N-value of 100, some responses were not approved due to issues with the predicted legitimacy of the data. This included individuals who straight-lined the survey or individuals who did not answer short-answer questions.

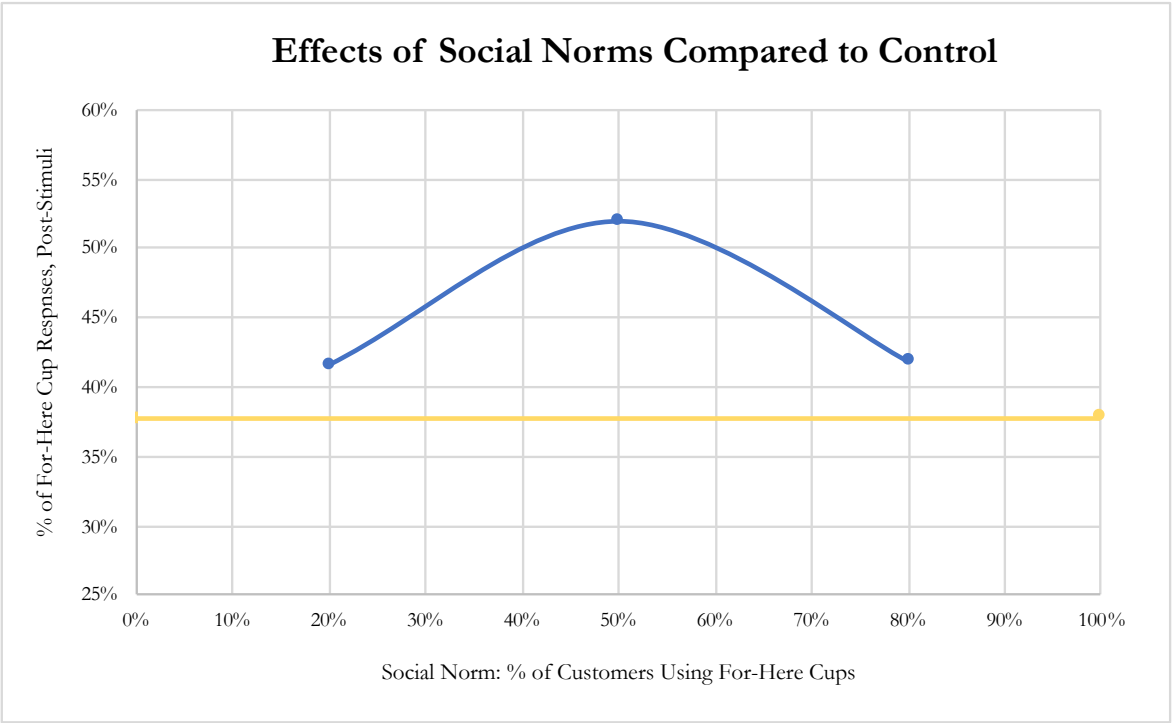
Control, Table 1		
Combined Experiment Respondents	**Percentage**	**Count**
For-here	37.81%	262
To-go	62.19%	431
Grand Total	**100.00%**	**693**

Control, Table 2		
Row Labels	**Percentage**	**Count**
For-here to To-go	1.44%	10
No change	76.12%	529
To-go to For-here	22.45%	156
Grand Total	**100.00%**	**695**

Experiment Results & Significance

For condition rounds, the percentage of respondents who chose for-here vs. to-go cups will be presented an analyzed. Experiment 1 results are displayed below, shown as percentage of respondents surveyed who chose a for-here cup and percentage who chose a to-go cup after being exposed to the stimulus (noted in the 'Condition' row). The table and chart below showcase trend in percentage of respondents who chose "For-here". The chart shows the percentage of for-here cup decisions (post-stimuli) when compared to the control round results (in yellow).

	Experiment 1 - Social Norms		
	Condition	**Percentage**	**Count**
	20% of our customers use for-here cups.	**33.78%**	**101**
1.1	For-here	41.58%	42
	To-go	58.42%	59
	50% of our customers use for-here cups.	**33.44%**	**100**
1.2	For-here	52.00%	52
	To-go	48.00%	48
	80% of our customers use for-here cups.	**32.78%**	**98**
1.3	For-here	41.84%	41
	To-go	58.16%	57
	Grand Total	**100.00%**	**299**



When participants were told that 50% of coffee shop customers use for-here cups, they were more likely to also choose a for-here cup than when they were told that 20% or 80% of customers used for-here cups. This could be attributed to the believability data collected which showed that for the 20% condition, 74% of respondents (*N*=145) rated that the statement "20% of our customers use for-here cups" was somewhat or extremely believable. For the 50% condition, around 43% responded that the statement "50% of our customers use for-here cups" is somewhat or extremely believable. For the statement "80% of our customers use for-here cups", however, this believability percentage declined dramatically to 12% (Appendix 2).

In order to understand which results were statistically significant, a hypothesis test was conducted. Z-scores were used to conduct a one-tailed hypothesis test against the null hypothesis. For each test per condition,

$$H_o: P_{con} = P_{var}$$

$$H_a: P_{con} < P_{var}$$

Where P_{con} is the proportion of the population that chose for-here cups without stimuli (control group) and P_{var} is the population proportion that chose for-here cups with stimuli (condition groups).[5] Using the sample proportions found through the experiment, a z-score can be calculated through the following formula:

$$z_a = \frac{\widehat{P_{con}} - \widehat{P_{var}}}{\sigma_{\widehat{P_{con}} - \widehat{P_{var}}}} \approx \frac{\widehat{P_{con}} - \widehat{P_{var}}}{\sqrt{\frac{\hat{P}(1-\hat{P})}{N_{con}} + \frac{\hat{P}(1-\hat{P})}{N_{var}}}}$$

Where $\widehat{P_{con}}$ is the sample proportion of the control group, $\widehat{P_{var}}$ is the sample proportion of the variable group, N_{con} is the sample size of the control group, N_{var} is the sample size of the variable group. $\hat{P}$ is the combined proportion: the sum of successes from both the control group and variable group divided by the sum of the control group sample size and the variable sample size.

$$\hat{P} = \frac{S_{con} + S_{var}}{N_{con} + N_{var}}$$

From the z-score, a p-value can be calculated such that $p - value = P(z < z_a)$. If the p-value is less than $\alpha = 0.05$, the null hypothesis can be rejected, confirming that the variable is significant.[6] The z-scores and p-values for Experiment 1 are displayed below.

Experiment 1		
Condition 1	z = .7296	Not Significant
	p = .2328	
Condition 2	z = 2.713	Significant
	p = .0033	
Condition 3	z = .7682	Not Significant
	p = .2212	

[5] The three conditions for hypothesis testing have been fulfilled here since the sample tested were chosen at random (criteria 1), the distribution is normal since there are at least 10 'successes' and 10 'failures' (criteria 2), and the samples are independent since the sample size is no more than 10% of the total population (criteria 3).

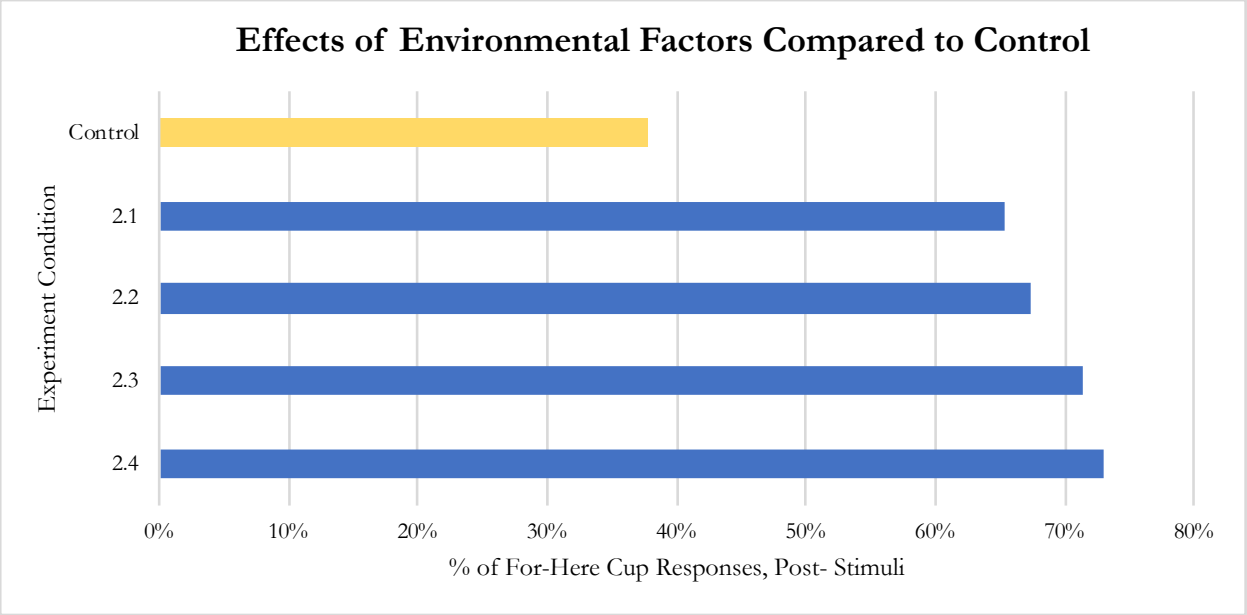
[6] $\alpha = 0.05$ was chosen as it a common significance level used in statistical analysis.

For Experiment 1, only condition 2 produces a significant result, showing that only at a 50% social norm level results are statistically significant.

From the above data, it can be concluded that a believable but still majority percentage of coffee shop customers have the strongest ability to affect decision-making for other customers. However, when this percentage does not seem to be a compelling (as the 20% variable) or believable (as the 80% variable) then the effect of the social norm is diminished.

Experiment 2's results are displayed below in the form of percentages per decision. The chart below also displays how the decision-making effects of environmental factors compared to the control group. Here, it can be seen that every condition in Experiment 2 led to over half of respondents choosing for-here cups.

	Experiment 2 - Calls to Action & Environmental Concreteness		
	Condition	**Percentage**	**Count**
2.1	**To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals.**	**24.87%**	**98**
	For-here	65.31%	64
	To-go	34.69%	34
2.2	**To-go cups are made of non-recyclable plastic. Plastic in the environment kills marine animals. Ask for a for-here cup instead.**	**24.87%**	**98**
	For-here	67.35%	66
	To-go	32.65%	32
2.3	**To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually.**	**24.87%**	**98**
	For-here	71.43%	70
	To-go	28.57%	28
2.4	**To-go cups are made of non-recyclable plastic. Plastic in the environment kills 1 million marine animals annually. Ask for a for-here cup instead.**	**25.38%**	**100**
	For-here	73.00%	73
	To-go	27.00%	27
	Grand Total	**100.00%**	**394**



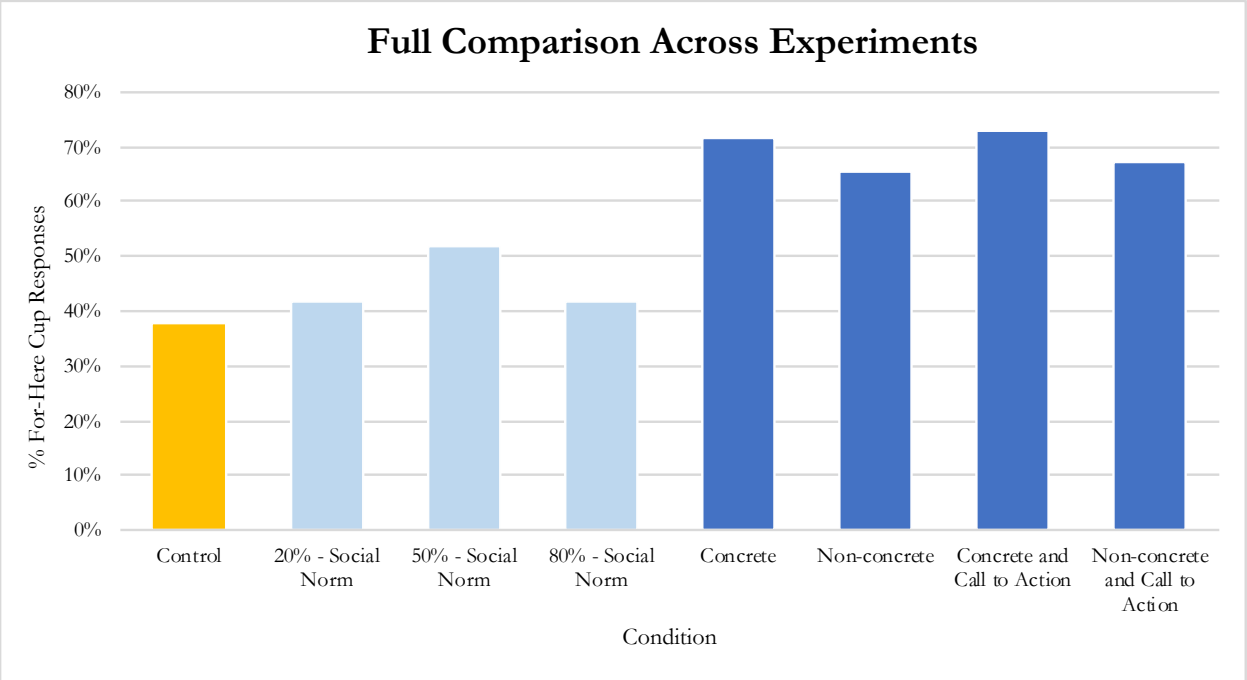
Before analyzing the results, a statistical analysis shows that all conditions yielded significant results, calculated through the same process as Experiment 1.

Experiment 2		
Condition 1	z = 5.1767 p = 1E-07	Significant
Condition 2	z = 5.5559 p = 1E-08	Significant
Condition 3	z = 6.3127 p = 1E-10	Significant
Condition 4	z = 6.6605 p = 1E-11	Significant

The results of Experiment 2 shows that even environmental factors with low concreteness and no call to action have a significant effect on consumer decision-making. The percentage of for-here choices in 2.1 is 72% greater than the control. For high concreteness and a call to action, shown in 2.4, this percentage increases to 93% greater than the control. From 2.1 to 2.2, a call to action is added which increases the proportion of respondents choosing for-here cups by around 3%. However, from 2.1 to 2.3, the concreteness of the statement changes from low to high (from

"marine animals" to "1 million marine animals annually"). This shift creates a 9% increase in respondents choosing for-here cups. A similar trend can be seen when analyzing the addition of a call to action in the concrete state (2.3 to 2.4). This addition of the call to action ("Ask for a for-here cup") increases the proportion by 2%. When a statement with a call to action becomes more concrete (2.2 to 2.4), the proportion increases by 8%. Thus, level of concreteness has a greater effect on consumer choice behavior than the call to action.

Comparing the effects of both experiments shows that Experiment 2 had consistently stronger results than Experiment 1. The chart below displays the two experiments and their effects on for-here cup choices, post-stimulus, compared to the control round.



Environmental Consideration Results

After completing the decision-making portion of the study, participants were asked to rate the degree to which they believed environmental issues are important.[7] The Likert 5-point scale ranged from "Not at all important" (1) to "Extremely important" (5). For the purposes of this discussion, points 1-2 are considered to have "Low environmental consideration", points 3-4 are considered to have "Medium environmental consideration" and 5 is considered to have "High environmental consideration". The table below displays the percentage and counts of respondents who changed their behavior from a for-here cup to a to-go cup, the percentage and count who did not alter their behavior, and the percentage and count of those who switched to a more sustainable cup-choice (to-go to for-here).

	By Environmental Ranking		
	Level of Environmental Consideration	**Percent**	**Count**
Low	**1**	**2.31%**	**16**
	No Change	100.00%	16
	2	**7.37%**	**51**
	For-here to To-go	1.96%	1
	No Change	86.27%	44
	To-go to For-here	11.76%	6
Medium	**3**	**18.50%**	**128**
	For-here to To-go	0.78%	1
	No Change	73.44%	94
	To-go to For-here	25.78%	33
	4	**36.42%**	**252**
	For-here to To-go	2.78%	7
	No Change	69.84%	176
	To-go to For-here	27.38%	69
High	**5**	**35.40%**	**245**
	For-here to To-go	0.41%	1
	No Change	80.00%	196
	To-go to For-here	19.59%	48
	Grand Total	**100.00%**	**692**

[7] The exact wording of the environmental importance question was as follows: "How important do you believe environmental issues are?" (1) Not at all important, (2) Slightly important, (3) Somewhat important, (4) Very important, (5) Extremely important.

Only 9.68% of respondents consider themselves to have low levels of environmental consideration, while the majority (54.91%) of respondents fall within the bracket of medium environmental consideration. 35.40% of respondents consider themselves to have high environmental consideration. This shows that environmental importance is of high priority to over a third of the sample population. The trends in this data show that those who ranked themselves 3s or 4s, mid-levels of environmental consideration, were the most likely to change their behavior. Due to the ceiling effect, many who rated themselves with a high level of environmental consideration were less likely to change their behavior.[8] This can be seen by the breakdown of decisions in the control round versus the condition round by level of environmental consideration. Those with high levels chose for-here cups at a greater rate in the control round (without stimuli) compared to other respondents.

Breakdown by Level of Environmental Consideration			
Level	**Count: Total**	**Count: To-Go to For-Here**	**Behavior Change**
Low	67	6	**8.96%**
Medium	380	102	**26.84%**
High	245	48	**19.59%**
Totals	692	156	22.54%

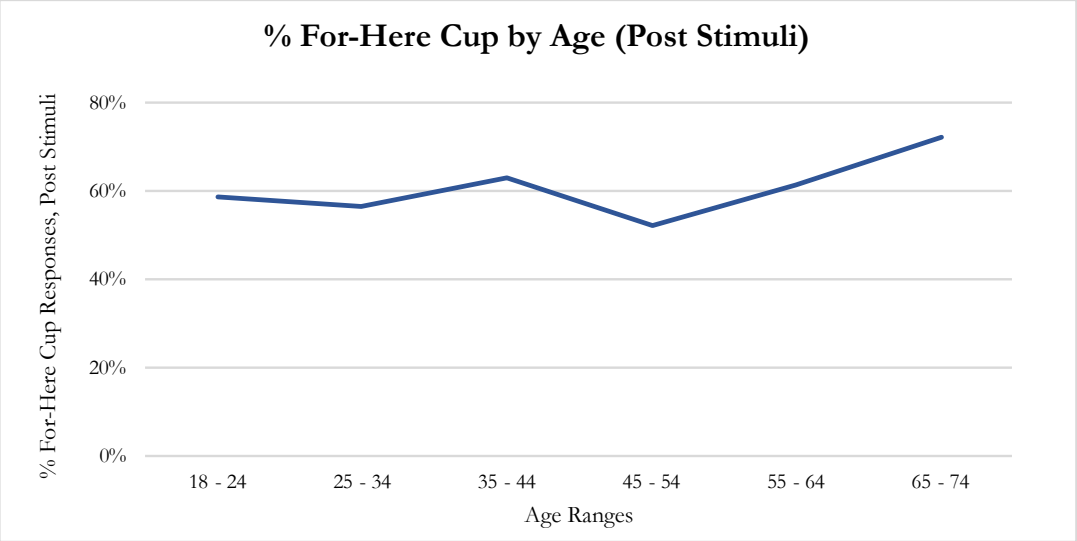
Percentage For-Here Choices		
	Control	**Condition**
Low	28.36%	35.82%
Medium	31.84%	56.58%
High	49.80%	68.98%

[8] The ceiling effect occurs when a high proportion of subjects in a study have maximum scores on an observed variable (Salkind, 2010). This makes discrimination among subjects at the top end more difficult. In the current study, since a large percentage of high environmental consideration respondents chose 'for-here' in the control round, there was a smaller pool that could change from 'to-go' to 'for-here', thus decreasing this change percentage.

Moderation Effects Results

In this study, six demographic variables were recorded alongside each participant's response to the experiments. These demographics included age, gender, race, education level, employment status, and income (Appendix 3). Of these variables, race and employment status lacked adequate response numbers in some fields to draw conclusions about statistically significant differences between populations.[9] However, age, gender, education, and income can be examined to test for differences between populations.

Within much of the literature, age is a common predictor of sustainable decision-making (Lee et al and de Pelsmacker et al both note age as a demographic driver). The moderation effects within the current study measured age ranges vs. percentage that chose for-here cups once exposed to the stimuli. However, within this experiment, there was no statistical significance between age range and for-here cup decisions, post exposure to stimuli.[10] Further, there is no significance between age range and percent who consider environmental issues "extremely important" (those with high environmental consideration).



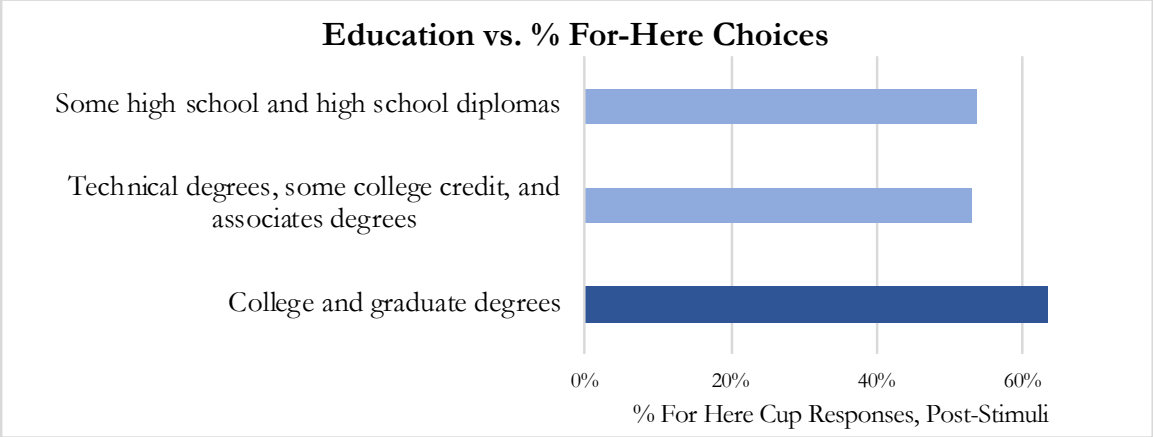
[9] Within the race demographic question, over 75% of respondents identified as white. Within the employment demographic question, over 70% identified as employed full time (40+ hours/week).

[10] The data has been tested, and due to low sample sizes in high percentage age ranges (65-74 specifically), as well as hypothesis testing showing p-values over the α of .05, the differences in this study are not statistically significant.

% by Age, with High Environmental Consideration	
18 - 24	32%
25 - 34	34%
35 - 44	31%
45 - 54	40%
55 - 64	42%
65 - 74	67%

Education has also previously been positively correlated with environmental awareness. By examining the differences between those with college and post-graduate degrees vs. those with technical degrees/college credits/associates degrees vs. those with high school diplomas or some highschool, there is a statistically significant difference between population proportions.[11] Specifically, there is a difference between college and graduate degree holders and technical/some college degree holders and college and graudate degree holders and some highschool credits and highschool diploma holders. The below data shows these statistically significant differences.

% For-Here Cup by Education (Post Stimuli)	
College and graduate degrees	63.52%
Technical degrees, some college credit, and associates degrees	52.89%
Some high school and high school diplomas	53.73%



[11] With a p-value average of .004 (less than the given alpha of .5) between the highest education level and the other measured levels, the population proportions are statistically different. Within the study, respondents were asked to choose more specific levels of education, but for the purposes of data analysis these choices were collected into 3 larger groupings.

Gender differences in decision-making have been thoroughly studied; specifically, social norms affect gender norms and differences in behavior that stem from these gender stereotypes (Clark, 2019). These gender stereotypes are present in both consumer behavior and marketing tactics (Clark, 2019). However, in the current study, no statistically significant differences exist between male and female decision-making.[12] Specifically, these differences were tested between Experiment 1 and Experiment 2 to understand how men and women responded differently to social norms stimuli and environmental stimuli. However, there was no statistically significant correlation between gender identity and response to different stimuli. Further, there was no statistical difference between how men and women's behaviors changed between experiments.

Income differences (split into two larger groups) also proved to have no significant effect on decision-making within the sphere of the experiments. Specifically, when examining outcomes of decisions post exposure to stimuli, those above and below 50k USD of annual income had the same percentage of for-here choices.[13]

Income Levels vs. % For-Here Choices, Post Stimuli			
Income	**For-Here Count**	**Total Count**	**Percentage**
Below 50k	189	321	**59%**
Over 50k	215	366	**59%**

[12] The experiment included Male, Female, Intersex, Nonbinary, and Prefer not to say as options, but over 98% of respondents chose either Male or Female so the data analysis has only used the male/female binary to conduct analysis.
[13] According to the US Census Bureau, the current US median household income is currently around $60,000, which is why the cut off of $50k was chosen. All options are displayed in Appendix 3 (Guzman, 2019).

Discussion and Application of Results

In order to evaluate the results of the study, the hypothesis presented before the experiment will be tested and analyzed. Then, a larger discussion about the limitations and applicability of the results will analyze how this research could have tangible effects on the private sector.

Hypothesis Results Discussion

> ***H1:*** *Social norms will positively predict the proportion of respondents choosing for-here cups; as the magnitude of social norms presented grows, so will the proportion of for-here cup choices.*

Hypothesis 1 was not fully supported by the data. The 50% social norm, stating that half of the coffee shop used for-here cups, led to statistically significant increases in for-here cup choices. However, the 20% and 80% norm levels did not create statistically significant increases (+3.78% and +4.03% from the control, respectively). This decrease in percentage for-here cup from 50% to 80% could be attributed to either believability of statement presented or ability to create change in the environment. In the pre-study, participants (N=145) noted that the statement "80% of customers in our coffee shop use for-here cups" was not entirely believable. Without believable information, consumers are less likely to change their actions. Another potential reasoning behind this dip is the sociopsychological phenomenon, the diffusion of responsibility whereby an individual is less likely to take responsibility for an action (or inaction) when other parties are present (Darley, 1968). In other words, the individual assumes that since others have already acted, there is no need for them to also act. Commonly used to explain the bystander effect, the diffusion of responsibility can also be seen when a large percentage of a group is already doing a specific action; other individuals may be less likely to join in because they believe their decisions won't change the status quo or that others have already taken responsibility for the action (Darley, 1968).

This most likely explains the dip in for-here cup decisions for the 80% condition. For example, in a local coffee shop where most customers use for-here cups, respondents may feel more pressure to choose a for-here cup than at a larger chain establishment (such as Starbucks) where a majority of customers are using to-go cups.

It is important to note that this experiment would potentially be more effective in a physical lab setting or a field experiment setting. Hearing that a majority of customers are using for-here cups is very different from seeing this as a customer walks into a coffee shop. An area of future study would be to see how the culture of an individual coffee shop would affect the social norms in a field experiment. In this proposed study, participants would enter coffee shops where other customers (in or around the percentages 20%, 50% and 80%) would be using for-here cups. When participants see the social norms in practice, their behaviors may fall into line closer to the trend predicted in H1.

> ***H2:*** *Environmental factors will positively predict the proportions of respondents choosing for-here cups; as the intensity of environmental factors grows, so will the proportion of for-here cup choices. Calls-to-action will have a larger effect on the proportion of respondents choosing for-here cups than environmental concreteness.*

Hypothesis 2 was upheld by the data and all four conditions proved to be statistically significant, with population proportions statistically different than that of the control group. Even the weakest condition (low concreteness and no call-to-action) was a 27.5% increase from the control with the strongest condition (high concreteness with call-to-action) a 35.2% increase from the control. Additionally, in this experiment it was found that increased concreteness led to a larger change in behavior than the inclusion of a call-to-action.

Concreteness in messaging is a nudge variable commonly used in marketing and specifically decision-making around sustainability. The issues of climate change and pollution are well-

documented, widely discussed, but difficult to tangibly understand. However, when the damage is quantified ("1 million animals die each year" vs. "is harmful") the immensity of the issues within climate change are more understandable. In this way, concreteness of information, within this study, was more effective in changing behavior. While the calls to action did positively increase for-here cup usage, its effectiveness was lower. This may be attributable to the psychological concept of reactance (Steindl, 2015). Reactance, defined as the motivation to regain a freedom after it has been lost or threatened, often leads people to resist the social influence of others (Steindl, 2015). In this way, calls to action may work against their original purpose: when people see a call-to-action, they are sometimes resistant to changing their action. Additionally, calls-to-action lead to behavior that is externally motivated: people change their behavior because of the wills or desires of other people. On the other hand, higher concreteness leads to internally motivated behavior. This is when individuals change their behavior due to their own wills or desires being altered. Internally motivated behavior is more likely to lead to long term changes in behavior as well (Vermeir, 2006)

> ***H3:*** *Experiment 1 (social norms) will have larger effects on the proportion of respondents choosing for-here cups than Experiment 2 (environmental factors).*

Hypothesis 3 was based on Goldstein's well-known hotel study as well as Lee's study on Hong Kong youth. These studies showed how peer influence and social norms were stronger in changing consumer behavior than environmental factors. However, given the operationalization of the variables ('social norms' and 'environmental factors') in the study, environmental factors were more powerful. This may be for a multitude of reasons, some previously discussed. In a field-study setting, such as the studies that the hypothesis was created on, social norms may prove to be more powerful. Additionally, the use of 'marine life' and using lives lost to increase the concreteness of the

environmental factor may have led to a stronger effect than the defined social norms. Lives lost draws a larger emotional reaction than social norms, and this increased emotional reaction may have triggered the stronger response (White, 2019). An area of future application would be to see within environmental factors if the death of marine life has a stronger effect on changing behavior than other types of harmful environmental outcomes (rainforest area cut down, exact numbers for carbon emissions, etc.). This type of experiment would test which environmental issues illicit strong emotional responses (which then lead to stronger behavioral responses); specifically, this could be used to measure how consumers respond to the various types of environmental degradation that single-use plastics cause (growth of landfills, increase in petroleum production).

Another reason that social norms in this experiment may have been less powerful than originally estimated is because at beginning of the study participants were told to conduct their actions as if they were "in their local coffee shop or a Starbucks store". Chain coffee shops and local, independently owned coffee shops approach sustainability issues very differently. At local coffee shops, where for-here cups are more often the norm, the social norms pushing towards for-here cups may be more effective. However, at a Starbucks, Caribou Coffee, or other chain, where for-here cups are much less common, the social norms are not engrained into the culture of the establishment and thus would more likely be less effective. An area of future study to understand how the culture and messaging that a coffee chain emanates to consumers affects responses to social norms within the store. A way to test this would be with a lab study: explain the culture of a store as future-facing, sustainable, and more of a gathering place versus a store with a corporate, profit-driven culture, with a high drive thru clientele, and see how decision-making of consumers differs within these stores. This type of study would better analyze the implicit roles that corporations play within consumer decision-making; by examining how institutions can alter their messaging and culture, companies can apply stimuli within their shops to create greater sustainable outcomes.

H4: *Respondents who report high levels of environmental consideration are more likely to change their behavior when exposed to stimuli.*

In this study, environmental consideration acted as a mediated moderator to understand how demographic and individual data affected decision-making within the condition round of the experiment. Participants that reported the highest levels of environmental consideration, however, were not the most likely to change their behaviors. Instead, it was those with medium environmental consideration that were most likely to change their behavior. In order to take advantage of this difference in populations, environmentally focused marketing should not necessarily be targeting those in demographics or populations that self-report high levels of environmental consideration. By targeting those in the middle, who rate environmental issues as "Very important" or "Somewhat important", greater changes in behavior can be created. Since 50% of those in the high environmental consideration group, without stimuli, chose a for-here cup, this ceiling effect reduces the potential for sustainable behavior changes.

In marketing today, there is a large push to market sustainable products or ideas towards young, educated, or environmentally forward consumers. However, one can argue, from the conclusions of the above data, that this type of marketing remains profit-first rather than planet-first. Plant-first marketing would be targeting consumers who fall into the medium bracket in order to inspire changes in behavior. Environmentally conscious consumers do not often need stimuli or nudges to make sustainable decisions; while these nudges are still effective on these consumers, they are significantly more effective in changing behavior in those in the middle.

In this study, the question about environmental importance was asked after respondents had completed the experiments. However, by asking consumers to choose their level of environmental

consideration prior to their decision-making, one could see different, and potentially stronger results. This area for further research would measure how sustainable behaviors change when a consumer is asked to self-identify their level of environmental importance before they make decisions. Humans are less likely to carry out actions that contradict each other in short periods of time: if consumers are reminded of their level of environmental importance, they may be more inclined to make sustainable decisions (White, Harvard Business Review). An overwhelming majority of the experiment rated themselves medium to high (3-5) with respect to environmental consideration. If these participants were reminded of their personal environmental importance and immediately asked to make a decision regarding sustainability, the percentage for-here cup choices may be stronger, even without a stimulus (White, Harvard Business Review). With a stimulus, specifically an environmentally concrete stimuli, this sample proportion could be higher than those found in the current study. Further, this type of nudge would continue to be internally motivated (which, as this study found, was more powerful than externally motivated nudges).

H6: *Educated respondents are more likely to change their behavior when exposed to stimuli.*

While many of the moderation effects produced no statistically significant differences between sample populations, education levels did produce significant differences between college and post-graduate degree holders and other populations. One potential reason for this is that college and graduate degree holders had the highest percentage that self-selected as respondents with high environmental consideration.

% of High Environmental Consideration	
College and graduate degrees	38.32%
Technical degrees, some college credit, and associates degrees	30.99%
Some high school and high school diplomas	35.00%

The chart above shows that those with college degrees were more likely to consider environmental issues "extremely important". Another potential reasoning for this trend is the increasing prevalence of discussion around environmental issues in higher education today (Richard, 2011). College students, specifically, have begun to ask more of their institutions in regards to environmental responsibility (Richard, 2011). Another reason for this difference relates to societal norms. People are likely to surround themselves with people with similar backgrounds, specifically educational backgrounds, as them: in this way, social norms within groups with higher levels of education may be more environmentally forward. Group norms within communities with more highly educated individuals may also be more open to changing habits to be more sustainable. While most sustainable habits do not have financial barriers, like asking for a for-here cup, there is a common sentiment that sustainability is a privilege. Those within these less privileged groups may feel that sustainable behavior changes are not possible for their lifestyles, while those who are more financially privileged may be able to take up sustainable behaviors in all parts in their life, making the addition of new behaviors more attainable. In arenas where sustainable choices come at no added cost, such as asking for a for-here cup, institutions should underline this universality of environmentally conscious decision making. This focus could help break down barriers between highly educated and less educated classes in order to make sustainable actions and lifestyles more accessible.

Real-World Applications

One of the largest issues around the application of this research is the aspect of habit and convenience in food and drink habits; specifically, many people include coffee and coffee shops in their morning commutes or daily purchases. For example, a respondent, when asked about their personal decision-making process at their last coffee shop visit wrote "I purchased the same coffee I always do, paid for it, and left.". Time restrictions are also key in decision-making. One of the largest costs of 'for-here' cups are the lack of convenience and time lost for consumers. When one orders coffee in a for-here cup, they must remain in the coffee shop until they are finished with their drink. The other sustainable option, personal cups, which were not covered within this study, pose their own unique costs. Consumers must remember to bring these cups and then must wash them and hold on to them afterwards. Multiple participants, when recounting their last coffee-shop trip noted they "were in a hurry", "went straight to [their] car", or "ordered to-go and immediately left". Further, the rise of mobile ordering, which is currently only possible with to-go cups, has also increased the convenience aspect for many consumers. When a consumer, as one stated, "is on autopilot every morning", convenience and habit lead to decision-making become a subconscious process rather than a conscious process. While many respondents also noted that they "sit at a table reading the paper" or "enjoy a mug of seasonal coffee in the shop", these respondents were outweighed by those who wrote about their habit, usual drink, or schedule.

Another issue with the current coffee culture within the United States is the lack of community created. In Europe, where the neighborhood coffee shop culture originated, to-go coffee cups are still sparse (Peters). Instead, coffee shops are an area to meet with others, fitting of the third spaces that Oldenburg coined them as (Peters). However, respondents in the study noted that often, staying in coffee shops felt unusual, a waste of time, and some even noted seeking out different seating options to be alone. One noted that they "prefer a to-go cup so [they] can sit at a

table or bar alone and sip coffee and check social media", while another noted that they are often doing work at coffee shops. This difference, togetherness vs. aloneness in coffee shops, shows the tangible differences between how coffee shops are viewed in the U.S versus Europe (Peters). Within the U.S., they are less of gathering spaces, like bars and restaurants are, and are more of individual productivity areas. Due to this use of coffee shops, more people opt for convenience options that will allow them to be more flexible with their work schedules ("I always bring my leftover coffee with me to my office").

Even in the face of these deep cultural barriers, however, these nudges still have the potential to affect change to create greener outcomes. Primarily, they have the power to stop habitual, system 1 decision-making processes. When consumers are faced with stimuli, their habitual decision-making is interrupted, and they are more receptive to changes in their decisions based on the information provided. This gap between the attitudes of consumers (especially those with high environmental consideration) and their actions can be solved by pointing out inconsistencies within their actions through stimuli that internally motivate the consumer to make decisions that more closely align with their beliefs. While there are many arenas to enact these types of nudges, millions of cups of coffee are sold every day. From the carbon emissions from the production of the plastic to the marine life that dies due to the plastic, changing this portion of our food and drink culture has the potential to not only improve our environment, but also recapture third spaces to help us create communities outside of our home and workspace. Coffee shops have the potential to be gathering places for idea creation, innovation, and togetherness; when consumers choose for-here cups they not only help the environment but also help create community. By adding marketing nudges to the point-of-purchase to break up habitual decision-making, corporations can help contribute to a greener, caffeinated tomorrow.

Appendices

Appendix 1: Survey images for round 1 and round 2

Task 1: Tea or Coffee

Task 2: For-here or To-go

Task 3: Savory or Sweet?

Task 4: Bar or Table?

Appendix 2: Believability of Differing Social Norm Levels, Prestudy

Prestudy Data: Believability of Social Norms (N=145)

Percentage, Social Norm	Extremely unbelievable	Somewhat unbelievable	Neither believable nor unbelievable	Somewhat believable	Extremely believable
20%	1%	15%	10%	45%	29%
30%	3%	13%	17%	41%	25%
40%	5%	19%	22%	39%	16%
50%	10%	30%	17%	28%	15%
60%	19%	39%	17%	19%	7%
70%	34%	32%	15%	11%	8%
80%	43%	32%	13%	7%	5%
90%	59%	23%	11%	4%	3%
100%	77%	16%	3%	3%	1%

Appendix 3: Demographic Breakdown of Study

Gender	Percent
Female	42.42%
Intersex	0.14%
Male	56.13%
Nonbinary	0.72%
Prefer not to say	0.58%
Grand Total	**100.00%**

Age	Percent
18 - 24	10.58%
25 - 34	39.42%
35 - 44	26.96%
45 - 54	12.75%
55 - 64	7.54%
65 - 74	2.61%
75 - 84	0.14%
Grand Total	**100.00%**

Race	Percent
Asian	7.50%
Black or African American	9.24%
Latinx	6.20%
Native American	0.87%
Native Hawaiian or Pacific Islander	0.43%
Other	1.44%
Prefer not to say	0.58%
White	73.74%
Grand Total	**100.00%**

Education Level	Percent
Doctorate degree	2.17%
Master's degree	9.86%
Bachelor's degree	43.19%
Associate's degree	10.29%
Some college credit (no degree)	20.87%
Trade/technical/vocational trianing	3.91%
High school graduate (diploma or equivalent)	9.57%
Some high school (no diploma)	0.14%
Grand Total	**100.00%**

Income Level	Percent
Below $10k	3.20%
$10k-15k	4.95%
$15k-50k	38.57%
$50k-100k	39%
$100k-150k	11.94%
$150k-300k	2.33%
Over $300k	0.29%
Grand Total	**100.00%**

Employment Status	Percent
Employed full time (40+ hours/week)	73.78%
Employed part time (less than 40 hours/week)	13.19%
Retired	2.07%
Student	3.41%
Unemployed	7.56%
Grand Total	**100.00%**

Appendix 4: Samples of Raw Data

Q4 What type of cup would you like?	Q5 What type of snack would you like to buy?	Q6 Where would you like to sit?	Q10 What type of drink would you like? PT 2	Q12 What type of cup would you like?
To-go	Sweet	Bar seating	Coffee	To-go
To-go	Savory	Table seating	Tea	To-go
For-here	Sweet	Table seating	Tea	For-here
For-here	Sweet	Table seating	Coffee	For-here
To-go	Sweet	Bar seating	Tea	For-here
For-here	Sweet	Bar seating	Tea	To-go
To-go	Savory	Table seating	Coffee	To-go
To-go	Savory	Bar seating	Coffee	To-go
For-here	Sweet	Table seating	Coffee	For-here
To-go	Sweet	Table seating	Tea	For-here
To-go	Savory	Bar seating	Coffee	To-go
To-go	Sweet	Table seating	Coffee	To-go
To-go	Sweet	Bar seating	Coffee	For-here
To-go	Sweet	Table seating	Coffee	For-here
To-go	Sweet	Bar seating	Coffee	To-go
For-here	Savory	Table seating	Coffee	For-here
To-go	Savory	Bar seating	Coffee	To-go
To-go	Sweet	Table seating	Coffee	For-here
For-here	Savory	Table seating	Coffee	For-here
For-here	Sweet	Table seating	Coffee	For-here

Q23	Q24	Q27 - ENVIRONMENT QUESTION	Q28	Q29
Employed full time (40+ hours/week)	$50k-100k	Moderately important	How I would choose based on environment	I wanted to go with what was comfortable to me
Employed full time (40+ hours/week)	$15k-50k	Very important	decisions on coffee shop	what i liked best personally
Employed full time (40+ hours/week)	$15k-50k	Extremely important	How would your choices change after viewing some facts?	I always have tea. Try not to use disposable cups.
Employed full time (40+ hours/week)	$15k-50k	Very important	How we make decisions and if additional information impacts our decisions.	Honestly, I do not have a preference. I am not that big on coffee and usually freestyle my choices when I go to coffee shops or grab coffee.
Employed full time (40+ hours/week)	$100k-150k	Very important	it is a survey that based on coffee and tea decision making,and individual preference	it will like to order for at least a cup of coffee because i had knew more on the function it can perform in the body however,i do order for tea most of the time but i like coffee so much sometime i do drink more than two cup
Employed full time (40+ hours/week)	$50k-100k	Extremely important	See how people feel about objects	I just got what I thought would be good
Retired	$50k-100k	Moderately important	I can't help but thinking it might, just might be a study about being lonely. What caught my attention was that information about bar seating, how one could meet more people there. I'm 60 now, had a lot of friends back in college, now, not so much.	Well, I generally prefer the more comfortable seats at a table, or sofa is even better. I'm not a big fan of Starbucks, the coffee tastes burnt to me. I prefer Peets or more local/regional shops. I prefer lighter roasts vs. darker roasts. To me, coffee "tastes better" in the paper cups.
Employed full time (40+ hours/week)	Below $10k	Moderately important	unsure.....	last time i went to mcdys and asked for a mocha frappe. its my fav coffee drink so there is nothing to decide.
Employed full time (40+ hours/week)	$50k-100k	Extremely important	opinion study related to coffee and tea.	I just like mu usual coffe with extra cream and some muffins.
Employed full time (40+ hours/week)	$50k-100k	Very important	How social pressures alter our decisions?	My only real change was based off of guilt for using a consumable coffee cup when a reusable alternative was available. Other then that, i didn't feel especially effected by the other placards.
Employed full time (40+ hours/week)	$100k-150k	Extremely important	How people respond to messages	I basically get the same thing every time: coffee in a to-go cup, then take my coffee and leave.

References

Ajzen I. (1985) From Intentions to Actions: A Theory of Planned Behavior. In Kuhl J., Beckmann J. (Ed.) *Action Control. SSSP Springer Series in Social Psychology. Springer. (*pp. 11-35). Berlin,Germany: Springer.

Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes, 50 (2)*, 179-211.

Albeck-Ripka, L. (2018, May 29). 6 Things You're Recycling Wrong. *New York Times.* Retrieved from https://www.nytimes.com/2018/05/29/climate/recycling-wrong-mistakes.html#:~:targetText=Your%20disposable%20coffee%20cup%20might,treat%20the%20cups%20as%20trash.

Aschemann-Witzel, J. & Niebuhr Aagaard, E. M. (2014). In-store organic food choice. I*nternational Journal of Consumer Studies*, *38(5).* 550-558.

Butler, Stewart and Carmen Diaz (2016). "Third places as community builders." *Brookings.* Retrieved from https://www.brookings.edu/blog/up-front/2016/09/14/third-places-as-community-builders/

Carrington, M.J., Neville, B.A. & Whitwell, G.J (2010). Why ethical consumers don't walk their talk: towards a framework for understanding the gap between the ethical purchase intentions and actual buying behavior of ethically minded consumers. *Journal of Business Ethics, 97(1).* 139-158.

CIEL (2019, May). *Plastic & climate: the hidden costs of a plastic planet.* Retrieved from: www.ciel.org/plasticandclimate.

Clean Water Action. (2019). *Starbucks and Our Plastic Pollution Problem.* Retrieved from https://www.cleanwateraction.org/features/starbucks-and-our-plastic-pollution-problem.

Cohen, D A, and S H Babey (2012). "Contextual influences on eating behaviours: heuristic processing and dietary choices." *Obesity reviews : an official journal of the International Association for the Study of Obesity* vol. 13,9 (2012): 766-79.

Darley, J. M., & Latane, B. (1968). "Bystander intervention in emergencies: Diffusion of responsibility." *Journal of Personality and Social Psychology, 8*(4, Pt.1), 377–383.

De Pelsmacker, P., Driesen, L., & Rayp, G. (2005). Do Consumers Care about Ethics? Willingness to Pay for Fair-Trade Coffee. *The Journal of Consumer Affairs, 39*(2), 363-385.

Earth Day. (2018, April 10). *Fact Sheet: Single Use Plastics.* Retrieved from https://www.earthday.org/2018/03/29/fact-sheet-single-use-plastics/.

Environmental Protection Agency. (2019) *Plastics: Material-Specific Data*. Retrieved from https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/plastics-material-specific-data.

Ethical Consumer. (2019). *History of Successful Boycotts*. Retrieved from https://www.ethicalconsumer.org/ethicalcampaigns/boycotts/history-successful-boycotts.

Gibbens, S. (2018). "What you need to know about plant-based plastics". *National Geographic*. Retrieved from https://www.nationalgeographic.com/environment/2018/11/are-bioplastics-made-from-plants-better-for-environment-ocean-plastic/.

Guzman, Gloria (2018). "US Median Income Up in 2018 from 2017." *United States Census Bureau*. Retrieved from https://www.census.gov/library/stories/2019/09/us-median-household-income-up-in-2018-from-2017.html

Hall, David (2017). "Throwaway culture has spread packaging waste worldwide." The Guardian. Retrieved from https://www.theguardian.com/environment/2017/mar/13/waste-plastic-food-packaging-recycling-throwaway-culture-dave-hall

Hume, Margee. (2010). Compassion without action: examining the young consumers consumption and attitude to sustainable consumption. *Journal of World Business, 45(4).* 385-394.

IBIS World (2020). "Fast Food Restaurants in the US industry trends (2015-2020)". Retrieved from https://www.ibisworld.com/united-states/market-research-reports/fast-food-restaurants-industry/.

International Union for Conservation of Nature. (2018, December 5). *Marine plastics*. Retrieved from https://www.iucn.org/resources/issues-briefs/marine-plastics.

Kelley, E. (1958). The Importance of Convenience in Consumer Purchasing. *Journal of Marketing, 23*(1), 32-38. doi:10.2307/1248014

Khoironi, A, Anggoro, S, & Sudarno, S. (2019). Community behavior and single-use plastic bottle consumption. *IOP Conference Series: Earth and Environmental Science.*

Krischke, U. (2019). "Global Initiatives to Reduce Single-use Plastics". *SGS*. Retrieved from https://www.sgs.com/en/news/2019/01/global-initiatives-to-reduce-single-use-plastics.

LaMorte, W. W. (2019). *Behavioral Change Models*. Retrieved from http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories3.html.

Lane, Ben and Potter, Stephen (2006). The adoption of cleaner vehicles in the UK: exploring the consumer attitude–action gap. *Journal of Cleaner Production*, *15(11-12)* pp. 1085–1092.

Laville, S. (2019). *Single-use plastics a serious climate change hazard, study warns.* Retrieved from https://www.theguardian.com/environment/2019/may/15/single-use-plastics-a-serious-climate-change-hazard-study-warns.

Mallos, N., Jones, J. S., & Hogge, K. (2019). *Plastics in the Ocean.* Retrieved from https://oceanconservancy.org/trash-free-seas/plastics-in-the-ocean/.

Mallos, N., Jones, J. S., & Hogge, K. (2019). *Trash Free Seas.* Retrieved from https://oceanconservancy.org/trash-free-seas/.

Oldenburg R. (2013) The Café as a Third Place. In Tjora A., Scambler G. (Ed.) *Café Society* (pp, 7-21). New York, NY: Palgrave Macmillan.

Peters, Lucas. (n.d.) "The New European Coffee Culture." *Moon Travels.* Retrieved from https://www.moon.com/travel/food-drink/the-new-european-coffee-culture/

Richard E. and J.N. Adams.(2011). "College students' perceptions of campus sustainability." *International Journal of Sustainability in Higher Education*. 12(1), pp. 79 – 92.

Robison, J. (2019). Millennials Worry About the Environment -- Should Your Company? *Gallup.* Retrieved from https://www.gallup.com/workplace/257786/millennials-worry-environment-company.aspx.

Ronald A. Clark, Diana L. Haytko, Charles M. Hermans & Christina S. Simmers (2019) "Social Influence on Green Consumerism: Country and Gender Comparisons between China and the United States." J*ournal of International Consumer Marketing*, 31:3, 177-190.

Salkind, Neil (2010). "Ceiling Effect". *Sage Publications: Encyclopedia of Research Design.* Retrieved from https://methods.sagepub.com/Reference/encyc-of-research-design/n44.xml

Steindl, C., Jonas, E., Sittenthaler, S., Traut-Mattausch, E., & Greenberg, J. (2015). "Understanding Psychological Reactance: New Developments and Findings." *Zeitschrift fur Psychologie*, *223*(4), 205–214.

Starbucks Corporation. (n.d.). S*tarbucks Company Timeline.* Retrieved from https://www.starbucks.com/about-us/company-information/starbucks-company-timeline.

Starbucks Corporation (n.d.). *Customer Service: How do I qualify for a cup discount?* Retrieved from https://customerservice.starbucks.com/app/answers/detail/a_id/2463/~/how-do-i-qualify-for-a-cup-discount%3F

Statista. (n.d.). *Coffee - Worldwide: Statista Market Forecast.* Retrieved from https://www.statista.com/outlook/30010000/100/coffee/worldwide.

Statista. (n.d.). *Organic food and non-food sales in the U.S. 2018.* (n.d.). Retrieved from https://www.statista.com/statistics/244394/organic-sales-in-the-united-states/.

Statista. (n.d.*). U.S. demographics of coffee drinkers 2019*. Retrieved from https://www.statista.com/statistics/250091/coffee-drinking-consumers-in-the-us-by-age-group-2010/.

The Evolution of Coffee Culture. (n.d.). Retrieved from https://www.ravereviews.org/coffee-culture/.

Thaler, R. H., & Sunstein, C. R. (2008). Nudge: improving decisions about health, wealth and happiness. *New Haven: Yale University Press.*

UNEP (2018). *Single Use Plastics: A Roadmap for Sustainability*

Vermeir, I. & Verbeke, W. (2006). Sustainable Food Consumption: Exploring the Consumer "Attitude-Behavior Intention" Gap. *Journal of Agricultural and Environmental Ethics, 19(2).* 169-194.

Watrous, M. (2019, November 13)." The evolution of convenience." *Food Business News.* Retrieved from https://www.foodbusinessnews.net/articles/11698-the-evolution-of-convenience.

Wansink, B., Just, D. R., & Payne, C. R. (2009). Mindless eating and healthy heuristics for the irrational. American Economic Review, 99, 165–169.

White, K., Habib, R., & Hardisty, D. J. (2019). How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework. *Journal of Marketing*, *83*(3), 22–49.

White, K.,Hardisty, D., Rishad, H. (2019). "The Elusive Green Customer". *Harvard Business Review.* Retrieved from https://hbr.org/2019/07/the-elusive-green-consumer

World Centric. (n.d.). *Compostable Plastics*. Retrieved from http://www.worldcentric.org/biocompostables/bioplastics.