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Using Green Messages to Cue Recycling Tendencies

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Using Green Messages to Cue Recycling Tendencies

by

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A thesis submitted in partial fulfillment
of the requirements for the degree of
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Zimmerman School of Advertising and Mass Communications
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ABSTRACT

Recycling of common plastics is a practical way to limit the amount of waste that ends up in landfills, and eventually contributes to various forms of pollution. However, statistics indicate that it is not currently a normalized, prioritized behavior. A pilot study indicated that relying only on preexisting frameworks such as the Elaboration Likelihood Model to understand consumer perceptions simply does not encompass the scope of the topic. Consumer experiences with green messages, especially in the current climate of a saturated advertising market are incredibly complex. Understanding these experiences is also currently being impeded by inconsistencies in how researchers in this field operationalize (or fail to operationalize) terms that are essential to applying results. This study takes an important step in bridging the gap between these terminological inconsistencies, as well as contextualizing results for modern consumers.

This study also posits that research needs to examine the foundation of these perceptions: language and meaning. A mixed-method survey was ergo used to garner information concerning how consumers define recycling, what personal and social factors influence decisions to recycle, and what design factors make a message encouraging recycling effective. Results indicate that conceptions of recycling and convenience are underdeveloped, and message design should focus on trustworthy statistics. Future researchers in this field can then apply these initial conclusions of how language is being used to future, discourse focused studies. Future advertisers and marketers can also more effectively position their products, then connect their intended audiences to that product.

CHAPTER ONE:

INTRODUCTION

A Set of Problems

Disposable trends in today's economy and the rapidly urbanizing populations that fuel it have increased the production of garbage dumped into landfills. This shortsighted mode of waste management begets degradation of the natural environment through hazards such as "groundwater contamination through leachate, surface water contamination through runoff," an abundance of microplastics in these bodies of water which are then digested by both people and animals, and the emission of the greenhouse gas methane which is "25 times more potent than carbon dioxide" (Singh, Cranage, Lee, 2014).

Recycling has long been considered a viable alternative to landfill disposal, as it "reduces the need for refining new material" (Diener & Tillman, 2015). The Environmental Protection Agency (EPA) defines recycling as the collection and processing of various materials that would otherwise be disposed of as garbage and turning that material into new products without reliance on raw materials (Municipal Solid Waste, 2016). This study focuses on the recycling of "common plastics," or those one typically encounters on a daily basis, used to package everyday consumer goods. This includes beverage bottles (water and soda), disposable food containers (yogurt cups, milk jugs), cleaning product containers (detergent bottles, spray bottles).

Despite the fact that recycling of these items "can provide environmental benefits" (Diener & Tillman, 2015), millions of tons of plastics still end up in landfills. The EPA reported that in 2014, the United States generated 258.5 million tons of municipal solid waste, and only 34.6 percent of that waste was recovered for recycling. While this number is higher than those of

years past, 75.5 percent of plastic went unrecycled and was disposed of in landfills. The highest recycling and composting rates were achieved for paper and paperboard (44.4 millions of tons) and yard trimmings (21.08 millions of tons).

Recycling of common plastics not being a priority is one of many issues currently facing this subject area. Historically, notions of thinking and behaving in “green” friendly ways have had a mutable presence in popular culture. They originated in the 1970s when the seminal book *Marketing and the Ecological Crisis* (Fisk, 1974) initially called attention to the role that marketers play in the continued deterioration of the natural environment, and the topic experienced an upswing in research. It has since continued to morph through subsequent theoretical and practical phases leading up to today.

While these studies and their accompanying lexicons provide an advantageous collection of historically contextualized literature, they are also problematic. As with many other fields of academia striving to keep pace with social, economic, and technological landscapes that are rapidly changing on global levels, research on the effectiveness of green messages is plagued with inconsistency. Relatedly, technological developments have catapulted consumers and their perceptions into an entirely novel realm of cognition that the majority of existing research simply cannot account for.

It is thus concluded that, despite the existing body of research prescribing various solutions to catalyzing green behaviors, encouragement of recycling currently lacks the salience needed for consumers to consistently prioritize a pro-ecological action like recycling plastics, and more research is needed. Specifically, research that addresses the multifaceted nature of how people understand recycling as a behavior, what factors lead to this understanding, and how the presence of both verbal and non-verbal communication influences this understanding is needed.

Taking a Step Back

van Dijk (1993) argues that researchers must form more in-depth frameworks “about the structure and operations” of less overt forms of social cognition, such as “opinions, attitudes, ideologies, norms and values.” While the conceptions within the original paper can no longer be considered modern, the argument itself is still valid. This study argues that reliance solely on empirical evidence and statistics isolated from the humans they attempt to describe is an insufficient way to understand consumers.

Rather, there is a need to return this field of research back to basic, linguistic study so as to better understand the “richly textured experiences” consumers have with the current onslaught of greenwashed advertisements, as well as their subsequent “reflections about those experiences” (Jackson, Drummond, & Camara, 2007). Thus this study endeavors to use thematic analysis of the use of language *alongside* those empirical statistics to bridge the gap between research on green behaviors that have come before, and the current experiences consumers are having. Once notions of what perceptions currently surround green messages have been updated and discursive activities have been located “within a meaningful context if they are to shape and construct action” (Hardy, Palmer, & Phillips, 2000), marketers and advertisers can become more readily equipped with the tools required to influence what people think, and eventually, what they do.

CHAPTER TWO: GREEN MESSAGES

History of Consumerism and Green Messages

While an area of study referred to as environmental psychology was developed to investigate human interactions with the natural environment in the 1960s (Kollmuss & Jilian, 2002), the decade that followed marked the significant onset of literature addressing declining ecological well-being. Ecologism, as opposed to environmentalism, will be addressed in more detail in proceeding sections. Fisk (1973), followed by Henion and Kinnear (1976) and Kardash (1976) all argued in one way or another that “marketing activities should take into account the welfare of society” (Peattie & Peattie, 2009) in an ecological capacity. They reasoned that it is within such marketing activities that non-ecologically responsible products are developed, distributed, and advertised (Fisk, 1973; Kilbourne, 1995). These early debates were precursors to research concerning Green messages and consumerism, and tended to be more narrowly focused on the category of businesses resultant of the shift away from rural agricultural tendencies in favor of industrialism; thus, businesses that deal with cars, chemicals, oils and ecologically responsible consumption were targets of this criticism (Peattie & Peattie, 2009). The subject of being ecologically conscientious in this way was picked back up in earnest again during the 1990s. Kilbourne (1995) addressed the topic in an issue published by the *Journal of Advertising* focused on ecologically conscientious marketing. The theories and insights contained in his article and the issue overall played a major role in the emergence of seemingly Green marketing.

It was during this time period that predictions among marketing researchers began “heralding a dramatic shift” in consumerism towards these popular products (Peattie & Peattie, 2009).

Eager to take advantage of these predictions, many companies – both those that provide products and those that provide services – began offering “Green” options using advertisements that made some type of claim to ecological responsibility. This advertising movement eventually aligned itself with a surge in what is known as Corporate Social Responsibility, the idea that companies are obliged to meet societal expectations of ethical operations (Beal, 2014), firmly establishing “the need for ethical ecological conduct of companies” (Nyilasy, Gangadharbatla, & Paladino, 2014). However, the advertisements put out to meet that need were not necessarily aimed at increasing the sales of the supposed “Green” option. Rather, the advertisements functioned mostly as a public relations tactic to help companies “creatively manage their reputations” (Laufer, 2003) in the midst of “increasing consumer sensitivity to environmental issues” (Aliniacik & Yilmaz, 2012). Aliniacik and Yilmaz (2012) proposed that many of these advertisements upheld a “weak credibility of green claims,” and thus contributed to what is referred to as greenwashing. Greenwashing is a phenomenon in which advertisements intentionally mislead or deceive consumers “with false claims about a firm’s environmental practices” and the subsequent impact of those practices (Nyilasy et al., 2014). This advertising practice capitalized on consumers’ tendency to want to participate in environmental preservation without the tools to fully understand what effective, responsible participation entails, and flourished as a significant trend.

This is not to say that the inundation of greenwashing has led to complete and irreversible brainwashing. The use of the term “greenwashing” itself (as opposed to one that implies a deeper sense of obligation to pro-ecological causes i.e. green-committing) indicates increasing

apprehension that seemingly “Green” products are not what they seem to be on the advertisements that tout their benefits (Laufer, 2003). Nyilasy et al. 2014 pointed out that as “firms profess to protect the environment but fail to demonstrate...” that these claims can be substantiated, consumers become increasingly skeptical of the marketing media presented to them. Thus greenwashing fosters a distrust of all Green claims, credible or not, making greenwashing a barrier to pro-ecological behaviors. It is ergo pertinent to investigate how to overcome this barrier and understand how today’s consumer forms opinions, trusts information presented to using the traditional model of communication (sender → message → receiver), and then acts on those opinions and trust relationships, all while functioning amongst the noise of greenwashing. The current study endeavors to accomplish this.

Furthermore, Kilbourne (1995) eventually concluded that the perpetuation greenwashing was indication that offering consumers alternative products to buy and use, and challenging the marketing industry and all of its encompassed practices (manufacturing, distributing, etc), would not sufficiently promote ecologism and contribute to the wellbeing of the natural environment. He proposed instead that “broader questions of sustainability” in the average consumer needed to be addressed if actionable progress was to be made. This study aims to proficiently formulate and adequately answer these questions by not using advertisements, which are inevitably lost in the clamor of the market trend of greenwashing, but instead starting simply by using Green messages. For purposes of this study, Green messages will be defined as those that promote an ecologically conscious lifestyle without promoting a product or service (Banerjee, Gulas, and Iyer, 1995; Nyilasy et al., 2014). This will help separate today’s consumer’s thoughts, feelings, and habits concerning marketing practices from those purely concerning sustainability. Once this

more focused and detailed picture is formed, the information and conclusions it yields can then be applied to marketing and advertising practices.

Issues with Terminology

A massively problematic issue that has persisted throughout this subject area is the use of the term “environmental” over the term “ecological” since Kilbourne (1995) delineated the distinctive characteristics that separate them. He developed a framework in which the concept of “greenness” or level of ecological concern was fleshed out in two dimensions: a political and a positional (see Figure 1).

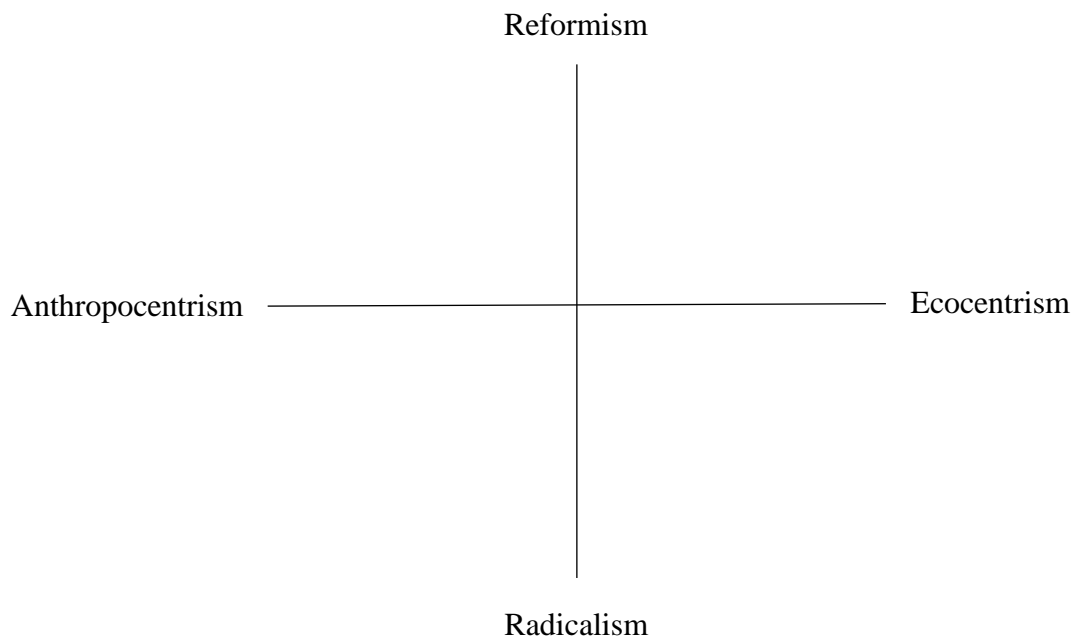


Figure 1. Dimensions of Greenness

On one end of the political spectrum Kilbourne developed is *reformism*, proponents of which believe that any changes necessary for the preservation of the natural environment can be

achieved with legislation. This way of thinking and the research it begets tend to avoid “allusion to the root causes” of the lack of societal greenness. That is to say reformism relies purely on surface-level empirical solutions, ignoring that a deeper shift within cultural thought processes could be warranted. Similarly, anthropocentrism lies along the positional dimension of greenness and perpetuates a dominant social paradigm that Kilbourne traces back to the Enlightenment, during which the “supremacy of humans” was asserted over non-human entities which included the natural environment. This human-centered paradigm embraced axioms such as “possessive individualism,” “unlimited accumulation of material wealth,” and free markets. These axioms eschewed any harmonious or reverent attitudes towards the natural environment in favor of exploitive and dominant ones (Kilbourne, 1995); greenwashing, for example, is a direct result of anthropocentric positioning, as it is aimed at increasing sales (material wealth) of products people purchase to improve their lives (individualism). Consequently, the scientific and social ideals leftover from the Enlightenment continue to contradict cultural attributes that would promote sustainability and ecologically conscientious attitudes. Compounded by the parameters of reformism, which also rejects the dismantling of thought processes ingrained on a societal level, these two dimensions of greenness are limited and largely insufficient. Kilbourne asserts that this intersection, wherein people are both anthropocentric and reformist, is *environmentalism*.

This term is, at its core, the antithesis of *ecologism*. Ecologism incorporates the characteristics of *radicalism* and *eco-centrism*. Radicalism is on the opposite end of political spectrum from reformism. As the term suggests, radicalism purports that political changes via legislation is “insufficient to engender” the type of change required to preserve the natural environment. Rather, radicalism calls for nonviolent restructuring of social, political, and

economic systems in place in favor of ecological conscientiousness. Positionally, eco-centrism acknowledges that the actions environmentalism might incur will be “impotent” in the process of solving or at least mediating ecological problems “if not accompanied by fundamental cultural change.” Thus, in opposition to environmentalism, the current study will favor radicalism and eco-centrism, the two foundational pillars of ecologism.

Beyond this, the field of Green research has continuously seen slews of authors brazenly defining and applying identical terminology in un-identical ways. For example, Kollmuss and Julian (2002) conceptualize pro-environmental behavior as those which actively aim to minimize negative impacts on the natural world; Newman et al. (2012) do not focus so much on behaviors, but start with cognitive stages of broadly conceptualized environmental concern as attitudes (friendly or unfriendly) towards the environment that result in indirect effects on behavior; Chun-Tuan focuses neither on attitude nor behavior, focusing instead of pro-environmental advertisements and conceptualizing them as media used to inform, persuade, and call attention to the a company or brand’s environmentally responsible actions. Furthermore, some literature indicates that combining knowledge concerning environmental issues with information on pro-environmental behaviors is positively associated with pro-environmental behavior (Boland & Heitzman, 2010; Steg & Vlek, 2009). More recently, Moghimehfar and Halpenny (2016) utilized the term pro-environmental behaviors in conjunction with pro-environmental behavioral intentions. Note the lack of use of the term “ecology.”

Beyond these psychological terms, studies also use marketing terms differently. Nonetheless, it has been found that “green advertisements may spark green acceptance but not necessarily generate actual green purchase behavior” (Yoon, Kim, & Baek, 2016). The previously discussed inconsistencies between focus on attitudes versus focus on behavior

indicate a lack of a general consensus on the trajectory pro-environmental attitudes take all the way through the impactful end result of pro-environmental action. Despite these inconsistencies, the existence of constraints or barriers is widely acknowledged as part of the trajectory starting with attitudes through action. Constraints have a restricting effect on pro-environmental behaviors (Yoon et al, 2013), but do not necessarily eliminate their possibility entirely (Moghimehfar & Halpenny 2016). Rather, people experience a negotiation process through which they analyze and potentially overcome the barriers, or constraints, to behavior (Schneider and Wilhelm Stanis, 2007).

To further this point, it is important to note that problematic inconsistencies also extend past terminology and conceptualizations to research results. Some research studies indicate that an individual's level of basic knowledge concerning existing Green problems is not positively associated with changes in behavioral intentions (Kollmuss & Agyeman, 2002; Bamber & Moser, 2007). However, more recent studies indicate the contrary. Moghimehfar and Halpenny (2016) found that knowledge of environmental issues was positively associated with pro-environmental intentions in individuals who engage in outdoor recreational activities such as camping.

While variety in definitions and conclusions on what factors are the most significant is detrimental to the formation of relevant theory, exploration of the topic from a variety of theoretical lenses is helping advance the field (Sheehan & Atkinson, 2012). Extant research has also covered a variety of previously unaccounted for mediating variables in attempts to bring clarity to the attitude-behavior gap (Sheehan & Atkinson, 2012). However, it should be noted that physical representations of the behaviors have not been developed in a way that is effective.

As iterated in this chapter, “many consumers may accept green claims, but fewer intend to act subsequently” (Kim et al. 2016) when faced with barriers such as greenwashing; it is ergo important to continue investigating consumers and their cognitive interactions with Green messages and the underlying factors that influence those interactions. Thus the current study will employ a deductive methodology that acknowledges the key differences between environmentalism and ecologism. Relatedly, this study will incorporate the insights generated by a preceding pilot study, the details of which are discussed in the next chapter.

CHAPTER THREE:

THE PILOT STUDY

Method Overview

In addition to the issues of terminological obfuscation, the results of a pilot study conducted prior to the current study are pertinent to the deductive approach presently being taken. The pilot study investigated modern conceptions of recycling, and yielded insights that informed the adjustments made to the methodology to follow. As such, it is necessary to first briefly address how the pilot study was carried out. Both quantitative and qualitative data was collected via a semi-structured interview discussing the subject with sixteen participants. The study used the Elaboration Likelihood Model, hereafter ELM, to investigate how people think about recycling. Participants were given one of two messages designed by the pilot study's Principal Investigator when they were initially recruited and agreed to participate in the research. Both messages used in the interviews promoted recycling as a behavior, and in ways that mirrored the two processing routes outlined by ELM (Cacioppo & Petty 1984). The first was primarily heuristic, and thus meant to cue peripheral route processing (see Figure 2). The second was meant to cue central route processing and relies primarily on text (see Figure 3). Being that this second message promoted recycling and allowed for deeper elaboration on behalf of participants, it was predicted that participants presented with this message would be more likely to behave in a predictable way.

Figure 2. Pilot Study Heuristic-Based Message

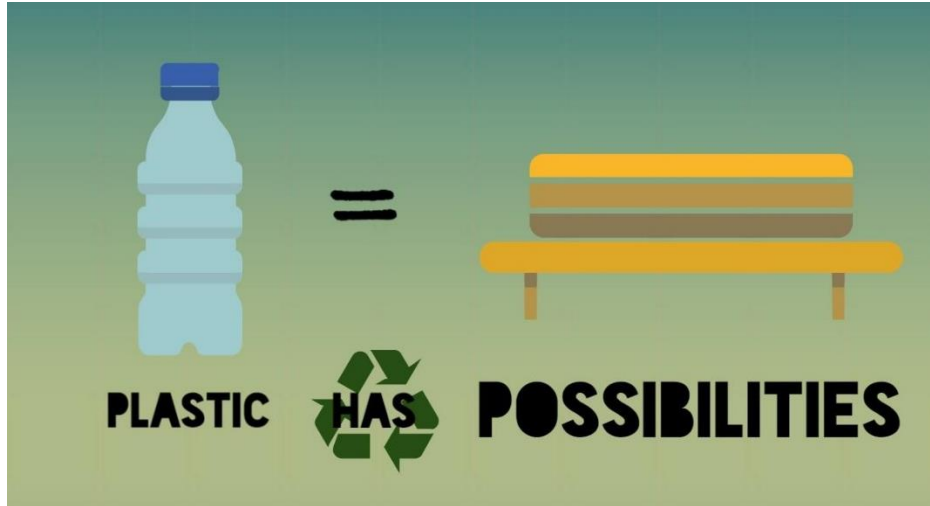


Figure 3. Pilot Study Text-Based Message



During actual data collection, participants were asked to look at two product labels designed for a fictional bottled water company (see Figure 4 and Figure 5). The labels had identical information, color schemes, and formatting, except for one key difference: the first label had the

recycling symbol and the text “please recycle this bottle,” and the second label had a Wi-Fi symbol and the web URL for the fictional bottled water company’s website. Participants were then asked to choose which water bottle label they preferred and why, thus contributing both quantitative and qualitative data. As previously stated, it was expected that those who were primed with the textual message during recruitment would be given the chance to mentally elaborate on the information and ergo be predisposed to choose the label with the recycling symbol.

Figure 4. Water Bottle Label 1

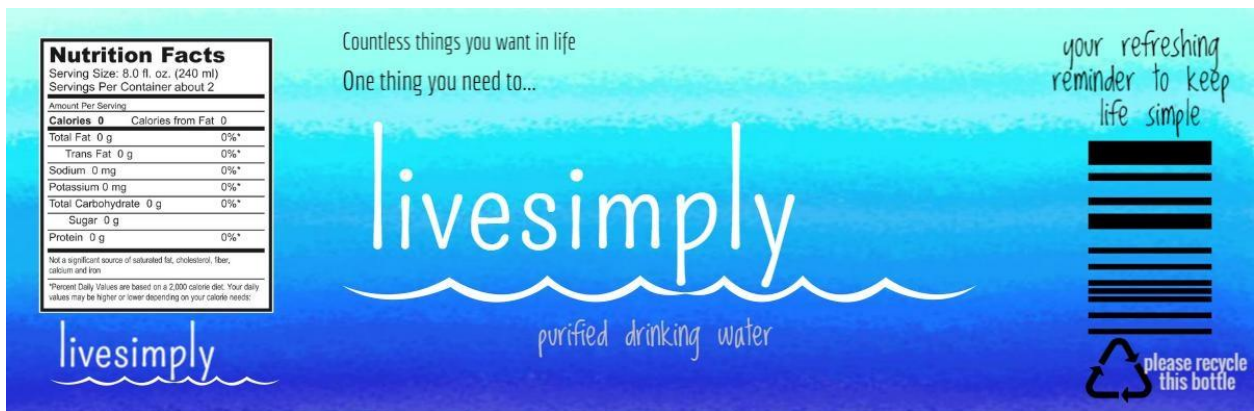
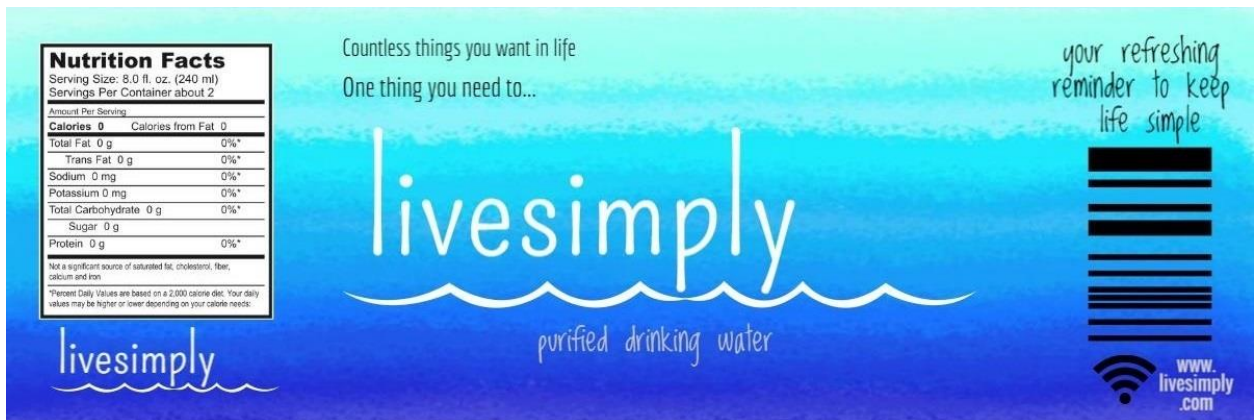


Figure 5. Water Bottle Label 2



After participants chose a water bottle label and explained their choice, their attention was brought back to the pro-recycling message that was given to them during recruitment. Participants answered a series of questions about the message during semi-structured interviews lasting about 10-15 minutes. This mixed-method pilot study yielded several acumens that have shaped the current study.

Initial Results and Insights

Qualitatively, several themes emerged in the pilot study interviews. The overwhelming reason participants touted for not recycling was a lack of convenience, citing reasons as widespread as recycling receptacles not equaling the availability of trash cans, and recycling not fitting into their busy lifestyles. The current study offers two plausible explanations for this, though these explanations are not necessarily mutually exclusive: conceptions of convenience are well defined, but deeply subjective and individually based, or “recycling is not convenient” has become a universally reflexive way to dismiss the behavior without triggering cognitive dissonance. In order to find out what convenient means in the context of recycling, the first research question for the current study is posed for the current study:

RQ1: What conditions must be in place for recycling to be considered a convenient behavior?

In general, the pilot study also revealed that the ELM is simply not equipped to account for the subjective nuances in perceptions concerning recycling. There are several examples that indicate this. First, three out of the 16 total participants did not notice the recycling symbol on the first water bottle label, and preferred the second one. All three of these participants had been given the text-heavy message that was designed to cue the central route of processing and allow higher elaboration. Thus, Cacciopo and Petty’s theory that high-elaboration routes are those most

likely to lead to predictable behaviors was not supported. In other words, a message that promotes recycling through central route processing does not necessarily foster high elaboration that would in turn promote the recognition of and preference for the recycling symbol.

Furthermore, several interviewees revealed that their past encounters with messages promoting recycling, and general knowledge of the rhetoric about the benefits of recycling, caused cognitive dissonance when those participants did not recycle. ELM cannot account for this cognitive dissonance, its effect on decision making, and the meaning that these decisions hold in a broader social context. Study participants also pointed out the message designs themselves, intended to be manifestations of the ELM, were also insufficient. Some participants who received the text-based message indicated that more aesthetic appeal would help the message's effectiveness, while some who received the heuristic message would be more effective if more concrete information described the images. In order to address these observations, while also maintaining consistency between the pilot study and the current study, a third hybrid message was designed (see Figure). The following hypotheses are subsequently posited for the current study:

H₁: The hybrid message will be more memorable than either the text-based message or the heuristic-based message.

H₂: The hybrid message will be rated as the most (a) aesthetically appealing, (b) trustworthy, (c) likely to positively influence attitudes towards recycling, and (d) likely to positively influence behavior towards recycling.

However, adding this third message does not fix the inadequacies the ELM faces. The model only offers two routes by which people can be persuaded to enact a behavior,

and this pilot study revealed that the factors that come into play when making recycling decisions are not only unpredictable, but are also not universally defined. Another approach is necessary to understand how people assign meaning to words that describe their perceptions of green messages and the behaviors those messages promote. A key field of research that investigates the mechanisms by which meaning is created and applied is discourse analysis. While the extensive timeline necessary for a comprehensive discourse analysis is not permitted by the current study, certain elements from this established body of literature will be adopted to frame research questions in an effective way, as well as more clearly organize the thematic investigation.

CHAPTER FOUR: DISCOURSE AND MEANING

Thinking of language as an ongoing social practice presupposes language as “a mode of action” that is always “socially and historically situated” (Fairclough 1993); these conditions in and of themselves warrant continued research on the language related to ecogism and how it is used. What was relevant to the initial discourse framework when Fisk published his seminal work 40 years ago, and even what was relevant 10 years ago, does not necessarily apply to modern discourse. Updating the body of social science research remains especially pertinent considering social (and ergo semiotic) shifts resultant of popular culture- and economic globalization, technological advances, and unprecedented population growth.

However, much like the terms addressed in Chapter Two, there is sparse agreement and consistency in regard to defining and applying the term “discourse” in social science research, and how “meaning” plays a role in the execution of discourse. In an effort to begin separating the close relationship between meaning and discourse, this study assigns the terms internal and external levels respectively. In other words, “meaning” will refer to the stable way that an individual internally makes sense of concepts like recycling. These personal meanings are informed by what the study refers to as external “discourse.” Discourse then refers to way people use language in social settings, and is dependent on context (Alvesson & Karreman 2000).

Furthermore, Alvesson & Karreman (2000) purport that discourse can either be transient or muscular. Transient discourse is only loosely tied to meaning, allowing the meaning of language to change with each specific situation. Muscular, or durable, discourse derives meaning

from broad social contexts and is relatively more consistent. While thinking of language as a temporally situated practice as Fairclough (1993) does may seem counterintuitive to considering the possibility of durable, broadly derived meaning, this paper argues that it is not. In any case, recent research on the subject of recycling, both as far as intention and as far as behavior, has yet to address whether recycling discourse is consistent across interactions (thus being more durable), or if it changes for individuals on a case-by-case basis (thus being transient). It is important to answer this question in order to understand the feedback relationship between how people are creating their personal definitions of recycling, and how those definitions are becoming part of larger conversations. Once this relationship is understood, it can be influenced in a way that effectively promotes pro-recycling intentions and eventually behaviors. Thus, the following research questions are posed:

RQ 2A: What is the current meaning of “recycling”?

RQ 2B: Is the meaning of “recycling” durable or transient?

Van Dijk (1993) introduced “critical discourse analysis” (hereafter CDA) which departs from traditional language study in that it takes a more socio-political approach to language and how it creates or perpetuates “power abuse and the injustice and inequality that results from it.” In his paper *Principles of Critical Discourse Analysis*, van Dijk explores the relationship between social *power*, the *dominance* it presupposes, the feedback loop these create at macro- and micro- levels of *social* cognition and, naturally, how *discourse* contributes to each of these concepts. He operationalizes dominance as the abuse of power beyond “conditions or legitimacy and acceptability that results in “social inequality” for “political, cultural, class, ethnic, racial, and gender” groups and group members. While this hegemonic approach is useful, dominant power relations— and the social inequality they both beget and are subsequently influenced by—

are not necessarily relevant here. What is relevant to the inherent catalysts motivating the current study is van Dijk's supposition that CDA should be "motivated by pressing social issues" and that both macro- and micro- level dynamics need to be addressed in order to effectively assess how discourse influences social cognitive processes. In an attempt to aggregate the various individual and interpersonal factors within the context of the modern consumer, the following research question is posed:

RQ₃: What (a) personal and (b) social factors influence choices concerning recycling?

CHAPTER FIVE:

METHODOLOGY

Population Sample

In total, 278 responses were collected. Of those, four were eliminated because the respondents were under the age of 18. Ethnically, 71.6 percent of participants identified as Caucasian, 4.5 percent identified as African American, 9.7 percent identified as Hispanic, 13.15 percent identified as Pacific Islander, and one percent identified as Native American. In regards to age, the largest age group participants identified with was the “18-24 years of age” bracket, with 122 participants selecting this option. Seventy-nine participants were 25-30 years of age, 17 were 31-40 years of age, 11 were 41-50 years of age, 35 were 51-60 years of age, and four were 61+ years of age. Only one participant indicated that the highest level of education completed was “some high school.” 2.23 percent indicated receiving a high school diploma or GED, 17.8 percent indicated completing some college education, 40.5 percent indicated receiving a college degree, 11.9 percent completed some post-graduate education, 23.8 percent received a post-graduate degree, and 3.3 percent of participants identified with the trade/technical/vocational training option.

Message Revisions

Several adjustments were made to the messages used in the Pilot Study (see Figure 2 and Figure 3). The icons and images used in the text-based message were eliminated to help ensure that analyses of the content would in fact be purely related to words and numbers (see Figure 6).

It was referred to as Message 1 in the study, so as to avoid priming participants towards its word-based nature.

Similarly, the caption at the bottom of the heuristic message was removed and the phrase “BE PART OF THE SOLUTION” was added instead (see Figure 7). This edit replaces superfluous text that weakens the intended “heuristic” nature of the message with text that is consistent across all messages. It also more closely likens the set of messages this study uses to marketing material that could possibly be used in practical situations (marketing campaigns) by adding a sense of consistency throughout each separate item. Again, this message was referred to as Message 2 in the study to avoid priming. The hybrid message (see Figure 8) was referred to as Message 3.

Figure 6. Message 1: Text-Based Message



Figure 7. Message 2: Heuristic-Based Message

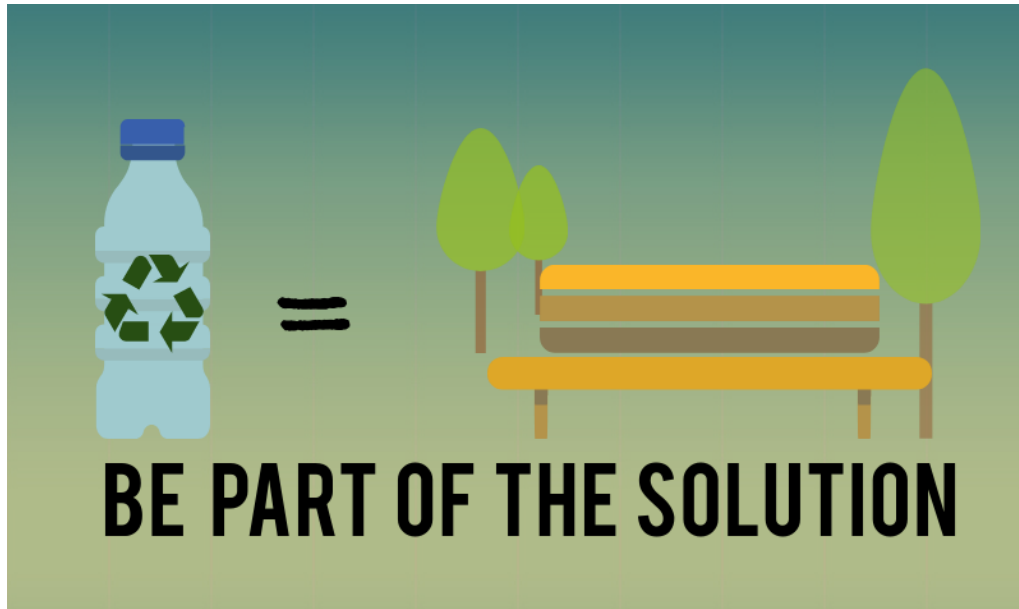


Figure 8. Message 3: Hybrid Message



Data Collection

An IRB-approved survey created using Qualtrics software was distributed from a southeastern university. Participants were recruited using convenience sampling via an email. The initial email was sent out on September 25th 2017, after which snowball sampling occurred. All participants consented to take the survey prior to proceeding to any research related questions, and also consented to have their answers analyzed for this study's purposes. No identifying information was collected, and responses were kept completely anonymous. The survey closed on October 15th 2017.

CHAPTER SIX:

RESULTS

Research Questions

Research Questions 1 asked what conditions must be in place for recycling to be considered a convenient behavior. Participants were asked to select answers that would apply to their personal definition of “convenience” in the context of the statement “I recycle common plastics because it is convenient” from a fixed set of answer choices. The results are detailed in Table 1.

Table 1. Factors Constituting Convenience

Factors	Percent of participants
recycling receptacles are clearly labeled	26.30%
recycling receptacles are within eyesight	23.62%
recycling receptacles are within short walking distance (10-15 paces away)	26.13%
plastic products are clearly labeled as recyclable	19.26%
I only have a few (2-3) plastic products to recycle	4.69%

Research Question 2 asked what the current meaning of recycling is, and whether or not that meaning is durable or transient. Participants were given an open-ended opportunity to explain how they define recycling of common plastics. The answers are analyzed in the following chapter.

Research Questions 3 asked what personal and social factors influence choices concerning recycling. Likert Scale questions were posed to address this question. Table 2 (Appendix) displays these results. Participants were also asked which descriptors they thought

applied to a person who recycles from a fixed list. They were then asked which of those descriptors applied to a person who *does not* recycle. Table 3 shows how participants responded.

Table 3. Personal Attributes

Attributes	Think it describes those who DO recycle	Think it describes those who DO NOT recycle
Attractive	7.3%	.7%
Nice	19.7%	.7%
Fun	5.7%	.5%
Low maintenance	5.4%	2.8%
Selfless	26.4%	.2%
Knowledgeable	29.5%	.5%
High maintenance	1%	4.8%
Pretentious	.2%	5.3%
Foolish	.2%	17.2%
Rude	.2%	9.4%
Lazy	.2%	26.6%
Unaware of the benefits of recycling	.2%	25.9%
I am indifferent to others' recycling behavior	4%	5.5%

Hypotheses

The first hypothesis posited that Message 3 would be the more memorable than Message 1 and Message 2. During the survey, participants were shown a page that displayed all three messages promoting recycling (see Figures 6, 7, and 8). In order to address answers pertaining to this hypothesis, a brief memorability codebook was developed to analyze participants' qualitative reflections of all three messages (see Table 4). Coding categories include Overall

Message, which deals with the overarching idea that recycling can be beneficial, and refers to the “BE PART OF THE SOLUTION” call to action. Expressions of the category Specific Details from Message varied, but were coded according to word use that explicitly paralleled the language or images contained in each message. The coding process also accounted for times when participants were able to identify whether the message was primarily textual, heuristic, or a combination of the two using the third coding category Identifying Intended Message Type. Finally, the Layout and Design Features category coded for any reference participants made to how the message visually came across.

Table 4. Memorability Codebook Examples

	Message 1	Message 2	Message 3
Overall Message	<ul style="list-style-type: none"> • Recycled plastic can be reused to build other things that we need • Facts about what happens when you recycle water bottles • Recycled materials can be used for good • plastic can be reused to make something useful 	<ul style="list-style-type: none"> • Described the Benefits of recycling. • illustrated directly what happens to recycled plastics and how they can be of a direct benefit to their environment 	<ul style="list-style-type: none"> • I am the one who decides that path; makes the reader feel important. • The "life cycle" of a plastic bottle • really shows the difference recycling can make
Specific Details from Message	<ul style="list-style-type: none"> • 7.4 cubic feet less landfill is used • uses 2/3 less energy; less energy being used to process plastics • can be used to make park benches • I think the number used was 1 ton of bottles 	<ul style="list-style-type: none"> • use recycled water bottles to make things like benches • Bottle + recycling = bench and trees • A picture of a water bottle with a recycle symbol on it, then... a bench, indicating that plastics can be recycled into public benches 	<ul style="list-style-type: none"> • organized chart displaying a dichotomy of a water bottle's endgame • Water bottles can make benches but trash stays in landfills • Recycled = bench • Trashed = many years in landfill

Identifying Intended Message Type	<ul style="list-style-type: none"> • Lots of words and some numbers/measurements • message was relating statistics through text • Quantitative description of recycling outcomes • Described in quantitative terms 	<ul style="list-style-type: none"> • Picture based • Graphic based • has minimal text • used symbols and images to express meaning 	<ul style="list-style-type: none"> • combinations of text and pictorial • Good combination of both text and pictures • Combined friendly pictures with clear text
Layout/Design Features	<ul style="list-style-type: none"> • three stats in the middle • Primarily blue and green background color scheme • black text with a green background 	<ul style="list-style-type: none"> • green with bold text • More colors, blue and green and brown but no words 	<ul style="list-style-type: none"> • blue and green background • flowchart showed possible routes/actions

Accounting for instances of these coding categories, Message 1 ended up being the most memorable with 193 expressions. Message 3 was second most memorable with 183 expressions, and Message 2 had 175 expressions.

The second hypothesis predicted that Message 3 would be rated as the most aesthetically appealing, containing the most trustworthy information, most likely to positively influence attitudes towards recycling, and most likely to positively influence behaviors towards recycling (see Table 5, 6, 7, and 8). Hypothesis 2 was only partially supported, as Message 3 was only ranked first in the influence on attitudes category and the influences on behavior category. Message 2 was ranked as most aesthetically appealing by roughly 10 percent more participants than second-rank Message 3. Message 1 was ranked as most trustworthy by roughly five percent more participants than Message 3, which was again ranked second.

Table 5. Aesthetic Appeal of Green Messages

	Ranked as 1	Ranked as 2	Ranked as 3
Message 1	6.3%	21.53%	72.2%
Message 2	59%	29.9%	11.1%
Message 3	34.7%	48.6%	16.7%

Table 6. Trustworthiness of Green Messages

	Ranked as 1	Ranked as 2	Ranked as 3
Message 1	65.3%	20.6%	14.18%
Message 2	7.1%	19.9%	73.1%
Message 3	27.7%	59.6%	12.8%

Table 7. Green Messages' Positive Influence on Attitudes

	Ranked as 1	Ranked as 2	Ranked as 3
Message 1	20.6%	44.0%	35.5%
Message 2	19.9%	28.4%	51.8%
Message 3	59.6%	27.7%	12.8%

Table 8. Green Messages' Positive Influence on Behaviors

	Ranked as 1	Ranked as 2	Ranked as 3
Message 1	22.9%	46.4%	30.7%
Message 2	15.01%	27.9%	57.1%
Message 3	62.1%	25.7%	12.1%

CHAPTER SEVEN:

CONCLUSIONS

Numerous themes were discovered using the grounded theory techniques of open, axial, and selective coding. The current analysis will employ Ryan and Bernard's (2003) definition that considers themes to be abstract concepts that link expressions and patterns found in texts. It is of course noted that ultimately, validity of themes gleaned from this information is largely determined by "the utility of the device that measures it" and the collective scientific community's judgement of how its analysis is carried out (Bernard, 1994).

Defining and Situating "Recycling"

Participants largely understood recycling processes to be different from those dealing with waste. For one, definitions of recycling around the acts of collecting and separating recyclable items from trash. Example expressions include: *"Separating out common items such as canisters and putting them in the curbside recycling bin," "Disposing of proper plastic goods into designated recycling containers and locations," "Placing the recyclable item in an appropriate container/receptacle," "Gathering and placing any package with the appropriate symbol into the recycling bin,"* and *"Collecting plastic items, taking these items to the nearest recycling bin."*

Second, it was observed that variations of the word "put" were the most common verbs used to describe these actions: *"Putting them all in the green recycling bin," "Putting them in containers marked for recycling...," "Putting the plastics into recycling bins."* It is used five

times more often than the verb “dispose” and ten times more often than the verb “throw.” This verbiage further demonstrates that most participants tend to consider actions dealing with trash (which is “disposed of” or “thrown” away) to be different from those that deal with recycling (“putting” and placing items into a receptacle). While this is beneficial in initially recognizing recycling in and of itself, it might pose complications when convincing individuals that recycling is just as *easy* and *more beneficial* than simply putting plastics the same place they put all other trash.

Another theme that emerged from defining recycling is much more problematic. The qualitative data set indicated a close, seemingly harmless association between the word recycling and a word it is used next to: reuse. While the “reduce, reuse, recycle” axiom is an important part of popular culture, and supports ecologism over environmentalism, this commits the same offense that Chapter Two and Chapter Four attempt to resolve. It is problematic under any circumstance, either in reviews of literature or here in crafting definitions, to use two unidentical terms in an interchangeable manner. Examples of this include: “*process of recovering and reusing waste products,*” “*Reusing containers for storage,*” “*The act of reusing plastic materials to eliminate toxins and waste,*” “*reusing plastic container for personal use,*” “*Disposing of items in a way that allows for reuse, ranging from directly repurposing an item yourself to collecting like-items to be for bulk processing for reuse,*” and “*reusing plastic products*”

Reuse in and of itself is a nuanced subject area with its own set of complex characteristics. This study posits these answers all underestimate the weight that “reuse” can carry independent of the scientific and mechanical processes that recycling incurs. Even responses that recognize recycling as a scientific complicated process still casually (and

erroneously) employ the term “reuse”: “*Putting plastics in a special bin so they can be processed to be reused,*” “*Being able to reuse our plastic waste in another form,*” “*Reusing materials for production of other products.*” Using the term in the way respondents do ignores that reusing alone is one of “the most effective ways [one] can save natural resources” and “protect the environment” (Reducing and Reusing Basics, 2017).

While this thematic discovery is tricky to address, it is important to do so in order to constructively move the conversation around ecologism forward. It establishes that the current meanings of the word “recycling” need to be reframed, such that recycling and reusing can be separated into two different entities. Following this, marketers and advertisers can communicate with constituents and intended audiences more effectively. For example, products that are manufactured from recycled materials can be positioned in markets separate from products designed to be reused, and ecologically focused non-profits can develop instructional marketing materials that properly educate individuals on the logical process of reusing common plastics *then* recycling them when they are no longer of use.

In determining if the meaning of recycling is durable or transient, most of the open-ended definitions of recycling did not seem to be temporally situated. Quantitatively, Table 2 shows that most participants recycle only at home, or both at home and at work. Later in the survey, an abundance of participants indicated that they *would* recycle more at work if the systems they use at home were also in place, and vice versa (discussed in the following section). Only one person disagreed with the statement “if I notice recycling bins, I will use them,” and two were neutral. It can be concluded that recycling is not necessarily a location-specific behavior, making it a term with a mostly durable meaning thus far.

Defining “Convenience.”

Participants were first asked to open-endedly define convenience, then select which answers from a fixed set of factors apply to their conception of convenience. Table ?? shows that, of those factors, respondents considered clearly labeled recycling receptacles and receptacles within walking distance to be of nearly equal importance. While these factors in no way form a detailed picture of what convenience means, they are more specific than answers to the open-ended question.

A pattern of vagueness formed, and continued to develop throughout the language participants used as they attempted to articulate their thoughts without guidance from the prompt. Some answers were blatantly vague in that they were reticent with their word count: “*With little effort,*” “*Easy,*” “*Not difficult or a hassle,*” “*Simple and easy,*” “*It is easier,*” “*The process doesn't make you go out of your way to do it.*” These responses do not explain what constitutes a “little” effort, what is “difficult” versus what is “easy,” what going out of one’s way might look like, etc.

Other manifestations of the theme of vagueness were less obvious. Some answers appeared to be detailed, but still did not outline any contextual parameters. One participant noted that “*I recycle when there is a bin close to me...*” which leaves one to wonder if “close” is within walking distance, or within the same room, or some other option. Another said convenience means “*There are many different resources to recycle effectively,*” but does not elaborate of how varied these “different resources” need to be. Are they resources that accept different recyclable plastics? Or are they resources that come in both personal and municipal forms? The response “*Convenient would mean accessibility, without a great deal of barriers*” in no way explains what these barriers might be, nor does it quantify “a great deal.” Clarifications

on what “availability” means were also missing from answers such as *“I will always recycle when there is an option available.”*

Relatedly, axial coding revealed that the theme of availability is also essential to many definitions of convenience. Apart vague uses of this term in loose circumstances as demonstrated by the last example above, other inclusions of the word “available” can be separated into four thematic subcategories (see Table 9). The first is Proximity, and is relatively self-explanatory. In addition to the types of answers displayed in Table 2, three respondents indicating wanting a recycling receptacle not to be “far” from them, and 12 indicated wanting one to be “near” them. Here again is a lack of specificity concerning what “near” and “far” encompass.

The second subcategory of availability is Frequency. Specifically, respondents expressed that recycling would only be convenient when receptacles were as numerous as trashcans, as detailed in Table 9. Furthermore, one participant noted that s/he only recycles when receptacles are as readily available *“as normal trash options,”* while another said that *“A bin is available next to a regular trash can.”* The answers imply that recycling is not a normal or regular behavior, at least not in comparison to dealing with garbage. Possible meanings of this societal-level language use are discussed further in following sections.

The third subcategory of availability is less easily outlined than the first two, and also falls in line with the previous theme of vagueness. Participants expressed a general desire for a degree of Ease of Access to recycling receptacles, but did not fully elaborate of what “ease” means. There were 39 references to ease of access in some capacity throughout the responses. Out of these, only a few of these responses described what this vague phrase meant. For example, respondents said that *“not expending more resources than [I] would normally*

throughout the day” or having recycling “not out of the way of daily routines” would qualify as convenience.

The final subcategory is Process Efficiency. This refers to the systems put in place by cities, recreational areas, housing developments, etc that facilitate and regulate recycling.

Table 9. Availability Subcategories

Proximity	Frequency	Ease of Access	Efficient Processes
The physical presence of a recycling receptacle in relation to the individual respondent	How often a recycling receptacle is present (usually in comparison to the presence of trashcans)	Describes use of time, effort, and other resources in the act of recycle, connoting that extra resource expenditure is negative	The private or public systems put in place to facilitate recycling
<p><i>Example responses:</i></p> <ul style="list-style-type: none"> • “close to me at the time that I finish using the common plastic” • “literally steps away” • “provided in an area that I [am] utilizing common plastic” • “within a short walking distance” • “in my residence or close to my residence.” 	<p><i>Example responses:</i></p> <ul style="list-style-type: none"> • “The recycling is next to the trash 9 times out of 10...” • “As accessible as a trash can, or close to it” • “a recycle bin right next to a garbage bin.” • a recycling receptacle is next to a regular trash bin...” • “when the option to recycle is readily available in the same manner throwing something in the trash is available.” • “a recycling bin at the same place as a trash can” 	<p><i>Example responses:</i></p> <ul style="list-style-type: none"> • “Simple and easy” • “Easily able to be done, not going out of the way” • “Easy. Not out of the way.” • “Easy...without going out of my way to recycle” • “Easy access to a recycle container.” 	<p><i>Example responses:</i></p> <ul style="list-style-type: none"> • “have a recycling bin in my garage that we empty into a recycling dumpster 1x week. It is collected by the county recycling center.” • “The recycling ...gets picked up every other week” • “City pick-up of common plastics” • “... curbside pickup of recyclables...” • “the recycling company picked up from my apartment”

Thus, the overarching theme of availability still does not yield specific parameters for the current definition of convenience. Even with ideas of having recycling receptacles as often as trash cans (Frequency), and ensuring that recycling systems already streamline actions individuals take (Efficient Processes), some answers – and the entire Ease of Access subcategory – still contain imprecise, unhelpful language. This discourse does not lend itself to practical conclusions concerning how to define, and eventually increase, convenience for modern consumers.

However, grounded theory encourages derivation of themes from missing data just as much as present data. This study ergo posits that the lack of specific language and overall vagueness indicate that convenience is merely a construct developed to handle cognitive dissonance associated with not recycling. To augment this point, participant definitions of recycling did not signify that it is a troublesome process for which vast amounts of energy, time, and finances are required. 109 participants even agreed or strongly agreed that recycling is mostly convenient, while only 49 participants reported the opposite (see Table 2). It is not until it is time to actually define convenience that they supply subjective, ambiguous constraints that must be overcome before recycling. In the short-term, this will be an important barrier to carefully address when appealing to modern consumers. In the long-term, it is possible that a cultural shift is in order, as Kilbourne calls for in relation to anthropocentrism. Specific to convenience, discourse that allows supposed lack of convenience to excuse non-ecological behaviors such as recycling would need to be dismantled, and replaced instead with discourse that normalizes recycling.

Personal and Social Factors

When asked which attributes participants would use in reference to those who recycle – from the fixed set of answers detailed in Table 4 – “knowledgeable” and “selfless” were chosen with most frequency, followed by “nice.” Furthermore, participants strongly agree that recycling is a good idea, and that it helps the environment (see Table 2). In contrast, participants found those who *do not* recycle to be “lazy” and “unaware of the benefits of recycling” (see Table 4). This indicates that, on a societal level, recycling is mostly an accepted and even beneficial behavior. However, the opinions on a smaller, interpersonal level are less overtly positive in comparison. Only 82 participants agreed or strongly agree that “people who matter most to me are pleased” when they recycle, while 90 participants were neutral on this statement. It therefore seems that recycling in general is an accepted behavior, but not one that is highly regarded between members of micro social groups. In moving forward, this study recommends that advertisers and marketers find ways to portray those who recycle as “fun” and “attractive,” as participants did not select these positive attributes. These might be the link to bring positive conceptions of recycling down from the societal level to the interpersonal one.

Hybrid Message Insights

While the result for Hypothesis 1 was not what the study predicted, there is a possible explanation for the discrepancy. The common phenomenon by which people tend to favor the first item they encounter is a cognitive bias called anchoring. Applied in this case, it is possible that participants remembered most about the first message they encountered. It should also be noted that Message 1, supposedly the most memorable message, had the most specific and concrete details. It is therefore possible that the codebook results were not a reflection of which

message was most memorable, but instead which message had the most material to be remembered.

Combining the information gleaned from these results and those pertaining to Hypothesis 2 (see Table 5, 6, 7, and 8), it is important to note that the message with the most concrete statistics won out over Message 3 in two important categories: trustworthiness, and memorability. In moving forward, adjusting Message 3 to include more of the concrete statistics used in Message 1 appears to be a crucial way to make Message 3 most effective.

Furthermore, this survey measured the factors of aesthetic appeal, trustworthiness, and likelihood to influence attitudes and behaviors in isolation of each other. The extent to which combinations of these factors influence perceptions of the overall message was not measured. For example, imagine Message 3 has been updated with statistics, and participants in a new survey rank Message 3 as most trustworthy. Does this identified trustworthiness then take Message 3's likelihood to influence recycling behaviors from "likely" up to "very likely"? In other words, to what extent does trustworthiness make a difference in decisions to recycle? Memorability? Aesthetic appeal? Future studies will need to carry out this rearrangement; other gaps future studies can address are discussed in the following chapter.

CHAPTER EIGHT: LIMITATIONS AND FUTURE RESEARCH

It should be noted that this initial investigation is mostly a surface level assessment. While it makes an important step towards forming a modern, more detailed picture of what recycling common plastics looks like for today's consumer, a more in-depth look at the extent to which these thought processes manifest throughout various interactions is required. A true discourse analysis is recommended to achieve this. Future researchers would need to amass diverse forms of both verbal and non-verbal communication that relate to recycling on personal and societal levels, and analyze how people assign meaning, how that meaning influences continued discourse, and the general semiotic value of recycling. It is also this type of extensive, detail-oriented study that could more fully support the proposition that convenience is not an external barrier, but instead an internal defense mechanism against the cognitive dissonance not recycling causes.

Furthermore, even surveys that employ mixed-method questioning do not allow full assessment of participant perceptions. There is the eventuality that not all participants read directions carefully, write answers that reflect the full development of their thoughts, or even finish the survey. Respondents are also predisposed to (purposefully or subliminally) giving answers because they believe it is researchers are looking for. Results from this study should be applied to a methodology that helps hone in on language and communication in an open setting: focus groups. This method would allow researchers to see how discourse surrounding recycling

is carried out in social situations, with the inclusion of body language, tone of voice, and other minute interpersonal communications that amount to the formation of meaning.

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APPENDIX

Table 2. Statements Concerning Recycling

Statements Concerning Recycling	Number of Participants				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am pleased with myself when I recycle	107	52	11	1	1
I recycle ONLY at home	4	6	12	87	63
I recycle ONLY at work or in other public places	16	11	1	76	58
I recycle both at home and in public places	82	65	6	9	10
I feel guilty when I don't recycle.	69	67	34	13	3
I want to recycle both at home and in public, but don't always get the chance.	62	87	19	14	4
I think recycling is mostly convenient.	31	78	28	42	7
I think recycling is a good idea.	155	27	3	1	0
I think recycling helps the environment.	152	27	6	1	0
I think recycling is an efficient process.	62	58	52	14	0
I trust that, when I recycle my common plastics, they will end up at the proper facilities.	56	79	35	15	1
I trust that recycling is an efficient process.	50	73	49	13	1
I trust that recycling is supported by scientific evidence (rather than a sham).	95	83	6	2	0

When I have common plastics, I deliberately look for recycling receptacles to dispose of them.	76	62	27	19	2
If I notice recycling bins, I will use them.	147	36	2	1	0
I frequently notice recycling receptacles in public places.	52	67	33	33	1
People who matter most to me are pleased when I recycle.	35	47	90	12	2
People who matter most to me recycle common plastics.	37	63	67	17	2
People who matter most to me think recycling is important.	49	72	54	9	1