ENVIRONMENTAL ADVERTISING AND FOOD PRODUCTS: IS THERE AN IDEAL MATCHUP?

BY

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THESIS

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ABSTRACT

This research aims to compare the effectiveness of environmental claims with informational and emotional appeals when applied to utilitarian and hedonic food products. The theoretical framework of congruency effects indicates that under matching conditions consumers are more likely to have stronger attitudes, purchase intentions and willingness to pay. This means that environmental claims with informational appeal would be more effective when applied to utilitarian food products, while environmental claims with emotional appeal would be more effective when applied to hedonic foods.

A study with a general sample from the United States suggests no ideal match between sustainable labels and foods, although emotional labels performed consistently better across conditions, not only when compared to foods with no labels, but also as compared to informational labels. Significant changes in attitudes were noticed especially for the utilitarian food and, more specifically, on consumers' affective attitude. Unexpectedly, however, there were not observed significant differences in outcomes among consumers with distinct levels of environmental values. These findings call attention for the need of more research in the area in order to fully understand the persuasion mechanisms of environmental advertising. Nonetheless, emotional labels applied parsimoniously to foods products might represent an opportunity to foster sustainable consumption, especially for utilitarian foods.

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION 1

1.1 The Problem and Its Importance 1

1.2 Purpose of the Study 3

1.3 Environmentally Friendly Food Products 4

1.4 Theoretical Contribution 7

1.5 Definition of Key Terms 8

CHAPTER 2: LITERATURE REVIEW 10

2.1 Congruency Effects/Matching Effects 10

2.1.1 Early Development and Theoretical Advancements 10

2.1.2 Contradictory Findings: The Need for More Research 12

2.1.3 Congruency Effects and Food Advertisements 18

2.1.4 Congruency Effects and Environmental Claims 20

2.2 Cognitive and Affective Attitudes 23

2.2.1 General Concepts 23

2.2.2 Attitudes and Green Products 25

2.3 Environmental Values and the New Ecological Paradigm (NEP) 27

2.4 Environmental Claims Perceptions 29

2.4.1 General Concepts 29

2.4.2 Environmental Claims Perceptions and Green Products 30

2.5 Behavioral Intention 32
2.5.1 General Concepts 32
2.5.2 Behavioral Intention and Green Products 33
2.6 Summary 34
2.7 Research Question and Hypotheses 36
CHAPTER 3: METHODOLOGY 40
3.1 Research Design 40
3.2 Internal and External Validity 40
3.3 Independent Variables 42
3.3.1 Hedonic and Utilitarian Food Products 42
3.3.2 Emotional and Informational Claims and Labels 42
3.3.3 Environmental Values 43
3.4 Dependent Variables 44
3.4.1 Attitudinal Measures 44
3.4.2 Behavioral Intention Measures 44
3.5 Instrumentation 45
3.5.1 Pre-test Procedures 46
3.5.2 Pre-test Results 47
3.5.3 Final Instrument Content and Procedures 49
3.5.4 Pilot Procedures and Results 50
3.6 Data Analysis 50

CHAPTER 4: RESULTS 52
4.1 Demographics 52
4.2 Scales Reliabilities 52
4.2.1 Attitude Scales 52
4.2.2 NEP Scale 53
4.3 Descriptive Analysis of Variables of Interest 54
4.3.1 Attitudes 54
4.3.2 Behavioral Intention 54
4.4 Correlations 54
4.5 Tests of Hypotheses 55
4.6 Research Question 60
CHAPTER 5: CONCLUSION 62
5.1 Overview 62
5.2 Key Findings 62
5.3 Implications 64
5.3.1 Theoretical 64
5.3.2 Practical 67
5.4 Limitations 68
5.5 Recommendation 69
5.5.1 For Future Research 70
5.5.2 For Practitioners 71

5.6 Conclusion 72

REFERENCES 73

TABLES AND FIGURES 85

CHAPTER 1: INTRODUCTION

1.1 The Problem and Its Importance

Despite consumers' increasing concerns about the environmental impact of human activities — which was followed by companies' frantic adoption of environmental advertising and promotion strategies (referred to hereafter as green marketing) — researchers and practitioners still cast doubt about green marketing effectiveness (Kong & Zhang, 2012). For this reason, there has been continuous research about what types of environmental claims should be used under what conditions and for which types of products. Conflicting findings, however, call attention for the need of further research (Kim, Cheong, & Zheng, 2009).

Over the years, in response to the raise of consumers' concerns about the environmental effect of their purchases, companies have been improving their production process to develop products less harmful to the environment as well as their advertising strategies to market these products (Schuhwerk & Lefkoff-Hagius, 1995). While shopping, consumers might consider environmental issues important for them by looking for cues and labels signaling that their purchases are compatible with their concerns (Laroche, Bergeron, & Barbaro-Forleo, 2001), such as 'environmentally friendly', 'sustainable production', 'eco-friendly', 'organic', and many others.

In the United States, about 100 new products entered the marketplace carrying some type of environmental claim in 2004; in 2009 this number reached around 1,500 (Worldwatch Institute, 2013). Within this wide range of goods (and of especial interest for this present research) food products play an important role. For instance, although accurate numbers on the importance of sustainable foods as a whole are scarce, sales of the organic industry alone are estimated to have reached $31.4 billion in 2011,

corresponding to a market share of about 4% in the US retail food sales in that same year (USDA, 2012).

Along these same lines, advertisements have also been using a variety of appeals to persuade consumers to purchase these products (Schuhwerk & Lefkoff-Hagius, 1995; Worldwatch Institute, 2013). At the same time, however, some studies have been suggesting that the wide spread of sustainable products and environmental claims may have reached a point where many consumers are experiencing a 'green fatigue' (Neff, 2010). Furthermore, although consumers frequently report that they would be willing to pay more for foods carrying environmental labels, when it comes to the decision at the point of purchase, in many instances, this does not happen (Wandel & Bugge, 1997).

Clearly, the increasing demand for products less harmful to the environment and the growing competition between companies lead to a variety of strategies that many times fail to attract consumers, which caused researchers to advocate the need for more studies about the effectiveness of different types of environmental appeals (D'Souza & Taghian, 2005; Peattie, 2010; Schuhwerk & Lefkoff-Hagius, 1995).

From a scholarly perspective, the present body of literature indicates that although the amount of studies on consumers' perceptions about sustainable food products is considerable, important aspects still remain underexplored, such as how environmental claims with distinct appeals (emotional and informational) affect consumers' perceptions when applied to different categories of food products (hedonic and utilitarian).

More intriguingly, no research has been conducted about how such claims may influence, in distinct manners, the hedonic and utilitarian dimensions of consumers'

attitude toward food among people with different levels of environmental values. That is, although consumers' attitude has been recognized long ago as a multidimensional construct with emotional and cognitive dimensions (Batra & Ahtola, 1991; Breckler, 1984; Crowley, Spangenberg, & Hughes, 1992; Katz, 1960), most studies about the impact of environmental claims on food perceptions focus on the evaluation of "overall attitude", without formally exploring its cognitive and affective dimensions as distinct components. Nonetheless, understanding these cognitive and emotional responses are considered important venues for new insights for influencing consumer behavior (D'Souza & Taghian, 2005; Peattie, 2010).

From a practical perspective, understanding the most valuable combination of environmental claims and food products is also essential to companies for developing efficient strategies that, ultimately, will also enhance consumers' experiences. Despite that, results of a content analysis for food advertisements showed that 'matching effects' practices (that is, emotional claims applied to hedonic foods and informational claims applied to utilitarian foods) - as recommended by the majority of scientific studies - is not uniform among the food industry (Dubé, Chattopadhyay, & Letarte, 1996; Kim et al., 2009). Also, in this context, new understandings about consumers' reactions to products marketed as sustainable become critical to develop appropriate strategies (Laroche et al., 2001).

1.2 Purpose of the Study

The purpose of this study is to compare the effectiveness of environmental claims with emotional and informational appeals when applied to hedonic and utilitarian food products. To accomplish this, it will rely on the theoretical framework of congruency effects (also known as matching effects), which states that emotional (informational)

appeals should be applied to hedonic (utilitarian) products in order to produce stronger attitudes among consumers (Johar & Sirgy, 1991; Rossiter, Percy, & Donovan, 1991; Vaughn, 1980, 1986). More specifically, it will explore the effects on consumers' attitudes (including their emotional and cognitive dimensions) under different combinations of hedonic/utilitarian foods and emotional/informational 'environmentally friendly' claims.

Consumers' willingness to pay (WTP) and purchase intent (PI) for these different product-claim combinations will also be used as additional measures of attitude and of behavioral intention to assess if these combinations are more effective in changing important dimensions of consumers' attitudes at a point where they would assign more value to those products.

Finally, given the importance of personal values in shaping consumers' attitude toward food in general (Honkanen & Verplanken, 2004), differences in these outcomes will be analyzed across consumers with different levels of environmental values.

1.3 Environmentally Friendly Food Products

Eco-labels (or environmental labels) seek to provide more information to consumers about the environmental impact of their purchases and also to promote changes in production standards, becoming an important market tool (D'Souza, Taghian, & Lamb, 2006; Galarraga Gallastegui, 2002).

One strategy to convey environmental benefits of products is through product claims on product labels, such as 'environmentally-friendly', 'eco-friendly', 'recyclable, among others (Loureiro & McCluskey, 2000; Morris, Hastak, & Mazis, 1995). The present research aims to increase understanding about the 'green' demand, by exploring consumers' responses to one type of these eco-labels, the 'environmentally

friendly' claims, which are indications that the product has relatively less environmental impact when compared with the same product without that claim (Federal Trade Commission, 2013; Steinhart, Ayalon, & Puterman, 2013). Notably, the Federal Trade Commission (2013) guidelines for green marketing do not permit blanket statements about environmental impact, like 'environmentally friendly' or 'green', without some substantiation in the advertising.

Since consumers form their perceptions about a product, in part, through exposure to media advertising and/or product labels, exploring how labels influence consumers becomes critical (D'Souza et al., 2006).

Understanding factors motivating pro-environmental behaviors is essential to influence actions that reduce harm or even benefit the environment to the extent that they predict some types of environmental behaviors, such as purchasing behaviors. Among these multiple motivators, there are the individual ones (perceived costs and benefits; moral and normative concerns; and affective and symbolic factors) besides contextual factors and even habitual behaviors. For instance, a behavior strongly related to attitudes might be influenced through attitude changes and reduction in contextual barriers, such as competitive prices (Steg & Vlek, 2009). Similarly, Shavitt (1990) showed that attitudes serving different functions respond distinctively to different persuasion appeals, that is, ads with functional-relevant information lead to more favorable thoughts and preferences for those ads (i.e., informational appeals for utilitarian functions and social identity appeals for social identity functions).

More importantly, these studies suggest that green marketing should not only focus on improving environmental quality itself but also on considering customer satisfaction through a deep understanding of their desires (Ottman, Stafford, &

Hartman, 2006). For instance, based on previous green marketing strategies adopted by well-known companies, Ottman et al. (2006) argue that green products are more likely to succeed and to attract mainstream consumers by offering additional 'non-green' benefits to consumers, such as symbolism and status, and also health and safety aspects.

Similarly, Thøgersen (2000) states that few products are purchased with the main purpose of protecting the environment since consumers' purchases are guided mainly by their private utility. Indeed, some food products marketed with environmental claims are perceived by some consumers as more flavorful and healthier, signaling the potential of strategies that go beyond the focus on technical qualities and eco-labels only (Rex & Baumann, 2007). Not surprisingly, Loureiro (2003) found that for Colorado wines labeled as environmentally friendly but perceived as low quality, consumers were unlikely to pay a premium price for them.

Another important predictor of ecological behavior, which will be explored in this present research, is environmental values. Within the environmental values research, several measures have been developed to measure environmental values, with the objective of understanding and predicting the relationship between these attitudes and ecological behavior (Kaiser, Wölfing, & Fuhrer, 1999). Important to notice, however, is that behavioral intentions to purchase sustainable foods are not fully consistent with favorable attitudes toward sustainable behavior, since other factors, such as involvement, information and knowledge - to mention just few - might play an important role in the complex decision-making process (Vermeir & Verbeke, 2006).

Finally, to the extent that credibility is essential for green marketing effectiveness, especially when consumers are not able to verify certain quality attributes (such as

environmental attributes), labels and certifications viewed as trustworthy by consumers help to enhance their believability of environmental claims (D'Souza et al., 2006; D'Souza, Taghian, Lamb, & Peretiatko, 2007; Ottman et al., 2006). As Thøgersen (2000) precisely stated, successful environmental labels should not only be noticed by consumers but also "understood, trusted and valued as a tool for decision-making" (p. 285).

1.4 Theoretical Contribution

This thesis has originated from a specific and practical issue, which is to identify the most effective combination of environmental claims and food products. To achieve this purpose, initially, a critical review of the Congruency Effects Theory was conducted with the objective of organizing the most relevant literature and findings about this theory and its theoretical concepts (constructs). Also, whenever possible, studies testing this theory in the specific context of green marketing of food products were also reviewed.

While condensing this knowledge, two equally important gaps in the literature were found. First, the lack of research testing the Congruency Effects Theory in the intersection between environmental claims' studies and food products' studies. Second, the need for more research aiming to expand knowledge on how such environmental claims influence the emotional and cognitive dimensions of consumers' attitude toward food, especially when considering their different levels of environmental values.

The organization of this theoretical framework and the identification of important gaps allowed formulating research questions and as well as hypotheses that serve important purposes. While the hypothesis will help in testing the Congruency Effects Theory in the context of environmental claims and food products, the research

questions will allow generating new understandings about the distinct impact of such claims in the attitudes of consumers with varying levels of environmental values.

1.5 Definition of Key Terms

- Environmental Claims: indication that the product, package, or service has relatively less environmental impact when compared with other similar items. Claims may be in the form of words, labels, symbols, and be asserted directly or by implication (Federal Trade Commission 2013, Steinhart et al., 2013).

- Environmental Values: beliefs about the relationship between humans and the environment, such as beliefs about humans' right to rule over nature and limits for human activities' growth (Dunlap, Van Liere, Mertig, & Jones, 2000).

- Attitudes (Overall): degree to which a person has a favorable or unfavorable evaluation toward an object or behavior (Ajzen, 1991).

- Affective/Emotional/Hedonic Attitudes: one of the dimensions of (overall) attitudes based on the consumer's assessment of feelings and sensory attributes from an object or behavior (Batra & Ahtola, 1991).

- Cognitive/Functional/Utilitarian Attitudes: one of the dimensions of (overall) attitudes based on the consumer's assessment of functional attributes from an object or behavior (Batra & Ahtola, 1991).

- Utilitarian/Functional Product: products that have their utilitarian components dominating overall evaluations. Primary motivation for consuming these products is to have functional solution for consumption-related problems, such as consuming nutritious and healthy foods (Batra & Ahtola 1991, Kim et al., 2009).

- Hedonic Product: products that have their hedonic components dominating overall evaluations. Primary motivation for consuming these products is to have sensory

pleasure, such as great taste and comfort feelings (Batra & Ahtola 1991, Kim et al., 2009).

CHAPTER 2: LITERATURE REVIEW

2.1 Congruency Effects/Matching Effects

2.1.1 Early Development and Theoretical Advancements

Although research about people's cognitive and emotional reactions to stimuli has been conducted for several years, in the 1980's Richard Vaughn proposed a model that became one of the most important references for practitioners and researchers in advertising persuasion/effectiveness. Because at that time Vaughn worked at the Foote, Cone & Belding/Honig advertising agency, this model was named FCB Grid. It was developed with an integrative approach of previous theories and models, notably the ones relating to cognition/emotion and to the involvement[1] concepts (Vaughn 1980, 1986).

The FCB Grid was composed by four main quadrants, each suggesting different strategies for advertising: 1-to be informative (in the case of high involvement and high thinking products: cars, houses, new products), 2-to be affective (for high involvement and high feeling products: jewelry, cosmetics), 3-to promote habit formation (for low involvement and high thinking products: food items), or 4-to promote self-satisfaction (for low involvement and high feeling: cigarettes, candies). Based on these main distinctions of involvement and product type, different strategies were recommended to practitioners, with information an important component of advertising copy for strategies 1 and 3, while salient emotional appeals were suggested for strategies 2 and 4 (Vaughn 1980, 1986).

[1] Vaughn (1980) briefly described involvement as being consumers' interest in products and services. High involvement decisions were the ones important in money cost, ego support and social value, for example. For this reason, they usually require more attention and information. Lower involvement decisions involve less risk and effort from consumers.

Despite the pioneering FCG Grid's importance, because of its simplicity and further studies in the area, some authors suggested more elaborated grids later, which became equally important (referenced) for other researchers, notably the Rossiter-Percy Grid (Rossiter et al., 1991). This improved planning model was built based on the main limitations of the FCG Grid and, among other aspects, considered the influence of brand awareness in consumers' attitudes, adopted changes in the measurement of consumers' involvement, and refined the think/feel dimensions by considering the role of negative emotions as purchase motivations (Rossiter et al., 1991). Nevertheless, despite those improvements, a closer look into their proposed strategies for each quadrant of the model clearly reveals that the affect/cognition matching effects concept still persisted.

Johar and Sirgy (1991) were also important authors that, early on, provided a more broad and scientific review of the product-message match concept. Through an extensive review of previous scientific findings, the authors proposed a model to strengthen the explanatory arguments of the match proposition. Their conclusions that value-expressive (utilitarian) appeals are more effective for value-expressive (utilitarian) products in influencing attitudes relied on 1) the well-established idea that products serve other reasons than merely functional purposes and also in 2) the existence of two different routes of persuasion (self-congruity route for value-expressive products and functional-congruity for utilitarian products). That is, value-expressive appeals would be more effective for products perceived as value-expressive because, in this situation, consumers are more likely to experience a match between the user image evoked by the ad and its own self (ideal)-concept (self-congruity persuasion route). Similarly, informational appeals for utilitarian products would be more effective because of the

perceived match between the products' characteristics and consumers' desired attributes (functional congruity route), resulting in greater persuasion (Johar & Sirgy, 1991).

This essential idea, that the more the advertising message matches with consumers' motivations and experiences, the more likely it is to be influential (Rossiter et al., 1991; Vaughn, 1980, 1986) served as the basis for many other studies that tested affect/cognition matching effects of advertising messages, which will be detailed in this present literature review.

It is also important no notice, however, that these studies did not always explore only the role of involvement and/or product category in the development of matching effects theories. In this context, since no single study can account for all possible factors mediating advertising effectiveness and matching effects (Kong & Zhang, 2012), it becomes important to access this different array of research, which together can contribute to expand our understanding for this present study. Therefore, although the main focus of this current research is in the matching effects between environmental claims (emotional/informational) and product categories (hedonic/utilitarian), studies accessing mediating roles other than product category were also reviewed.

2.1.2 Contradictory Findings: The Need for More Research

As previously stated, from early on, researchers have been studying whether affective or cognitive message appeals are more effective when they match or mismatch the basis of consumers' attitude. However, many of these studies have produced contradictory findings and, therefore, the possible reasons underlying why different types of messages change different types of attitudes is still open to debate (Fabrigar & Petty, 1999; Millar & Millar, 1990).

In the early 1990's, in the core of these contradictory findings, there were two main works: one from Millar and Millar (1990) and another from Edwards (1990). It is important to notice in advance, however, that these different results can be accounted for differences in their methodology along with the use of different theoretical frameworks.

Millar and Millar (1990) chose to adopt the so called 'cognitive response approach', according to which by presenting a counterattitudinal argument to a person (e.g., emotional message vs. cognition-based attitude) this argument will not threaten the person's thoughts about that object and, therefore, this person has no motivation to counterargue that message, becoming more susceptible to a change in their attitude. Similarly, when a message is directed to the basis of the attitude (e.g., rational argument vs. cognitive attitude) the person is more prone to produce counterarguments sufficiently strong to overcome the message, limiting attitude change.

In their research, Millar and Millar (1990) conduct a series of studies which, overall, supported their mismatch hypothesis and also their 'cognitive response approach' hypothesis. Basically, in their research, Millar and Millar (1990) exposed students with emotional and rational attitudes toward common beverages to different types of affective and cognitive messages, looking for changes in their initial levels of agreement with the messages that were being presented to them, as well as changes in their evaluation/preferences for the beverages.

At the end of their research, however, the own authors recognized that their hypothesis may not always hold, that is, in some cases it is plausible to suppose that the counterarguments produced by people can be ineffective (not strong enough) in overcoming the ad message and, in this case, focusing in the basis of the attitude could

be a more effective (matching) strategy (Millar & Millar, 1990). The variables that could have mediated counter argumentation effectiveness (such as new vs. well-established attitudes, message novelty, involvement, etc.) were not explored in their experiment and were left for future research.

Differently from Millar and Millar (1990), the studies conducted by Edwards (1990) had the so called 'functional approach' and, therefore, instead of focusing on counter argumentation, this framework focused on the fact that attitudes serve individuals' psychological functions (e.g., knowledge, self-expression, gratification, etc.) that gives some suggestion about their affective or cognitive dominant basis. Furthermore, based on an important (theoretical) piece written by Zajonc (1980) at that time, Edwards (1990) stated that affective-basis attitudes are relatively more resistant to influence from rational argumentation because of their nature and, for this reason, might be more responsive to emotional appeals.

In her research, Edwards (1990) conducted two studies that supported the hypothesis of emotional attitude-message match, and also the hypothesis that emotional attitudes are expressed with greater confidence. Interestingly, the hypothesis of cognitive attitude-message match was not supported.

One of Edwards' (1990) experiments basically consisted in creating a new attitude toward a fictitious high-energy drink called 'Power-Plus' and subsequently subjecting this new attitude to emotional or rational messages. Affect- and cognition-based attitudes were induced by varying the sequence of affective and cognitive exposure during attitude formation (primacy effects). Affect-based attitude were formed by having participants to first taste Power-Plus (presumed pleasant) and then read some information about this beverage. In the induction of cognition-based attitudes,

they first read a text about the drink and then they tasted it. In the persuasion phase, a similar approach was used. As previously stated, results showed that affect-based attitudes were more susceptible to change by emotional means of persuasion, although no difference was noted for cognition-based attitudes. Also, as initially suggested by Zajonc (1980), affect-based attitudes tend to be irrevocable and, in fact, in this study they were held with more confidence. It is also worth to mention that this study was replicated in a similar fashion by Edwards and Von Hippel (1995) but dealing with real people instead of food products. Again, the results were similar, that is, people holding emotional attitudes toward another person were more persuaded by emotional messages about that person and these emotional attitudes also tended to be held with greater confidence (Edwards & Von Hippel, 1995, Study 1).

Why these results occurred was not explored in the research; however, Edwards (1990) speculated that a possible explanation could be attributed to the fact that affect-based attitudes might usually be expressed in a more simple unidimensional positive-negative manner, being a global evaluation of the attitude object (e.g., good or bad taste taste) while cognition-based attitudes have a multiple structure (not restricted only to the favorable-unfavorable dimension) and are acquired by the evaluation of several relevant attributes for consumers. In this sense, for an affect-based attitude, an affective persuasion is more likely to influence directly this global evaluation of the object while the cognitive persuasion about some attributes may be discarded based on the global evaluative structure. For cognition-based attitude, emotional persuasion addresses only one of the several relevant dimensions of this attitude while the cognitive persuasion is more likely (although not always, such as in Edwards' (1990) experiment and Millar and

Millar (1990, Study 2) to be elaborated in a manner that addresses the most relevant attributes for the cognitive attitude formation (Edwards, 1990; Fabrigar & Petty, 1999).

In light of these contradictory results, Millar and Millar (1990) also offered alternative explanations. For instance, Millar and Millar (1990) worked with well-established attitudes toward popular products (e.g., milk, Coke, etc.) or attitudes formed through considerable direct experience, while Edwards (1990) explored changes in new attitudes toward novel products (e.g., fictitious high-energy drink) formed through limited direct experience (Millar & Millar, 1990). As a consequence, in the first case, attitude may be more resistant to change, and so, messages targeting a different dimension of this attitude could be a more effective strategy. In this case, the superiority of a cognitive message in changing an affective attitude may be observed because of their novelty and not as a function of the mismatch hypothesis itself, that is, a persuasive message may be convincing by other means other than just a simple mismatch between attitude and claim (Edwards, 1990).

Some years later, Drolet and Aaker (2002) integrated these two explanations to serve as the theoretical framework for their own study. In line with Millar and Millar (1990) speculations, the authors replicated findings that for well-established affective attitudes, greater persuasion effects occur for cognitive appeals while for individuals with no prior affective attitudes, greater persuasion effects occur for affective appeals. For cognitive attitudes, however, there was no difference in persuasion effects between cognitive and affective appeals (neither for new nor for well-established attitudes), since cognitive attitudes have a more complex structure and no target appeal was taken into account (result also similar to previous studies of Edwards (1990) and Millar and Millar (1990, Study 2).

Despite these alternative speculations, maybe the true reasons for these contradictory findings can rest in methodological differences fallacies of these studies. As Fabrigar and Petty (1999) emphasized, Edwards (1990) did not conduct a manipulation check of the attitudes inducted by the order manipulation and in this case it is not possible to determine if they produced primacy, recency or no effect at all. Millar and Millar (1990) also presented several fallacies in their study, among which the wording of some instructions given to participants while asking explicitly for their 'feelings' or their 'reasons' depending on the conditions they were assigned into the experiment (Fabrigar & Petty, 1999).

In order to address these critical points, Fabrigar and Petty (1999) conducted a new study with a very similar methodology from Edwards (1990), however, they adopted several (successful) manipulation checks and they also worked with two types of affective persuasion (tasting and smelling the beverage) and two types of cognitive persuasion (reading a passage about the taste and the odor of Power-Plus). Their hypothesis was that if the affective and cognitive attitudes are such important distinctions, then the same persuasion effects should be expected regardless of the product's attribute being explored (taste or smell). More importantly, matching appeals to the basis of attitudes should be successful regardless of whether the products' attribute match or mismatch (Fabrigar & Petty, 1999).

Through two studies, Fabrigar and Petty (1999) partially confirmed this hypothesis: affective persuasion was more successful against affective attitudes regardless of the attribute match, however, cognitive persuasion showed equal changes in both types of attitudes. In their second study they obtained similar results and, additionally, discarded different persuasion effects based on direct and indirect

experiences as previously speculated by Millar and Millar (1990). Fabrigar and Petty (1999) reasoned that these relative effects in attitude change may be due to the fact that affective and cognitive attitudes differ in the complexity of their structure, just as previously speculated by Edwards (1990).

2.1.3 Congruency Effects and Food Advertisements

Dubé and Cantin (2000) suggested that informational and emotional appeals effectiveness to change food attitudes is contingent on 1) consumers' structure of attitudes (affect or cognition-based attitudes) and on 2) type of response considered by researchers as the expression of consumers' evaluation (liking or consumption change intent). That is, since previous research had suggested that food liking and consumption are predominantly affect- and cognition-based constructs, respectively, the authors expected that food liking indicators would be more sensitive to emotional appeals and food consumption indicators would be more sensitive to informational appeals. Furthermore, these results should be more pronounced for people with stronger affect-based attitudes (Dubé & Cantin, 2000).

The product chosen in their research, milk, was used because of previous studies' findings and also due to pre-tests' results showing that people can hold (well-established) affective and cognitive attitudes towards this product. The research results showed that, for people with affect-based attitudes toward milk, food liking (affect-based) was more sensitive to an emotional appeal, while consumption change intent (cognition-based) was more sensitive to informational appeals, therefore, suggesting a matching effect. Important to notice, however, is that these effects reached statistical significance only for milk liking, but not for milk consumption whose effects were only directionally confirmed (Dubé & Cantin, 2000).

More recently, using a wide range of products that included foods, Geuens, De Pelsmacker and Faseur (2011) also explored the mediating role of product type, by testing if the effectiveness of emotional advertising appeals depends on the product category they promoted. Assuming that emotional ads are effective when feelings are important motives for buying products, and also that both hedonic and utilitarian products may have both emotional and utilitarian benefits, the authors initially showed that emotional ads are more effective in enhancing ad and brands attitudes than their non-emotional counterparts, irrespective of the product category (hedonic or utilitarian). Clearly, however, these results did not help in explaining why then previous research had found poorer results of emotional ads in some instances (especially for utilitarian products).

In this context, Geuens et al. (2011) further hypothesized that emotional ads' effectiveness would depend on the products themselves and not only on the type of ad appeals. The results of experiments confirmed the hypothesis that the product itself may lead to a different attitude and that previous contradictory studies findings' could be explained not because of the inappropriateness of the emotional ad appeal but mainly because of the products under study. In sum, emotional appeals effectiveness also depends on the products being advertised since they evoke different attitudes and associations in consumers' minds. For this reason, emotional ads work better for some product types than others and, therefore, it is perfectly reasonable that although emotional ads also enhance perceptions for utilitarian products, when these products are compared to hedonic products they may not be as effective (Geuens et al., 2011). From a methodological perspective, this study calls attention for the importance of

working with products for which consumers have, at least, similar levels of overall attitude before the conduction of the experiment.

Choi, Paek and King (2012) tested matching effects between healthy/unhealthy food (yogurt/ice cream and granola bar/chocolate chip cookies) and nutrient/taste claim[2]. As predicted, matching effects were observed, that is, the combinations of nutrient claims-healthy foods and taste claims-unhealthy foods lead to higher claim believability and higher attitudes toward the ad and the brand. The authors speculated that these results might be attributed to consumers' preconceived expectations about the taste and healthiness of the products (unhealthy food = tasty expectations and healthy food = healthiness expectations) and thus, matched claims might be perceived as more important informational cues than mismatched claims.

2.1.4 Congruency Effects and Environmental Claims

In regards to environmental claims, which are of special interest in this present research, Steinhart et al. (2013) explored the effect on environmental claims on consumers' perceptions about utilitarian (toilet paper) and hedonic/luxury (fancy napkins) products. In Study 1 the authors showed that the mere presence of an environmental claim enhanced consumers' evaluation for both types of products, however, this process is driven by different mechanisms: environmental claims applied to utilitarian products increase perceptions of functionality while for hedonic products the presence of these claims enhance self-perceptions of being environmentally oriented, and thus, justifying the usage of the hedonic product. In light of these results, in Study 2 the authors manipulated the content of these environmental claims by creating appeals

[2] For chocolate chips cookies – 'I have vitamin A' vs. 'I am yummy); for granola bars – 'healthier thinking for a multi-grain granola bar with vitamin A' vs. 'tastier thinking for a multigrain granola bar'; for ice-cream – 'we can sum it up in two words: calcium-rich, nutritious, wholesome…admittedly, we're bad at summation' vs. 'we can sum it up in two words: tasty, savory, delicious…admittedly, we're bad at summation; for yogurt – 'ridiculously healthy yogurt with added calcium' vs. 'ridiculously delicious yogurt'.

that would match the motivations to buy those products. That is, for utilitarian products environmental claims emphasizing global benefits (reducing environmental damage) showed to be more effective. On the other hand, for hedonic products claims focusing on personal benefits (increasing their own social image) were more effective in enhancing products' attitudes (Steinhart et al., 2013). Additionally, it is also important to notice, however, that consumers evaluated the environmental claims mainly as utilitarian features of the products under study (Steinhart et al., 2013) and, therefore, in the context of this present research these results suggest a mixed effect (that is, utilitarian product-informational claim, but hedonic product-informational claim).

Kong and Zhang (2012) explored green message effectiveness across products with high and low environmental impact. To the extent that the different products elicit different emotions, the authors reasoned that different feelings should be associated with the consumption of products with low (e.g., cereals, energy drinks, milk) and high environmental impacts (e.g., detergents, batteries, cars). The results of their experiment showed that claims on products for which consumers had a higher perception of environmental impact (batteries) had significant impact in enhancing their overall attitude toward the ad and purchase intention. For products with lower perception of environmental impact (cereal), there was no significant difference in attitudes between green and non-green appeals.

Hartmann and Apaolaza-Ibáñez (2008) analyzed the role of consumers' perception of utilitarian and emotional benefits of green consumption in the formation of attitude toward the brand, suggesting that both perceptions serve as motivators for consuming green products. While utilitarian benefits referred to perceptions about objective improvements of environmental quality, positive emotional experiences were

elicited with images of appealing nature scenes (to arouse what the authors called 'virtual nature experiences') and with the use of claims developed to evoke well-being feelings for acting in an altruistic way by supporting green energy production. Overall, the study's results suggested that appealing images are capable of evoking emotional feelings/benefits and enhancing consumers' attitudes, if adequate persuasion techniques are developed (such as using appealing images of nature, evidencing utilitarian benefits and eliciting altruistic feelings). Furthermore, by analyzing the experiments' results among consumers with high and low environmental concerns, allowed for richer insights: virtual nature experiences enhanced attitudes for both types of consumers; environmental utilitarian benefits enhanced attitudes only for highly concerned consumers; and well-being feelings were significant only for low concerned consumers (Hartmann & Apaolaza-Ibáñezm, 2008).

In this research, the authors also examined the results in light of the Elaboration Likelihood Model (Petty, Cacioppo, & Schumann, 1983), that is, for highly (environmentally) involved consumers, direct arguments/information about environmental product features seems to be a better strategy of persuasion. On the other hand, for low (environmentally) involved consumers, appealing to positive emotional attributes through peripheral cues, such as emotional images, appear to be a better strategy (Hartmann & Apaolaza-Ibáñezm, 2008).

Finally, for a better comprehension of this extensive literature review, Table 1 provides a concise view of these studies. One important point to notice, however, is that many of the studies reviewed here exposed participants to unfavorable information about the attitude object in the persuasion phase. This aspect is especially important for

this present research, to the extent that environmental claims are, presumably, favorable information for most people.

2.2 Cognitive and Affective Attitudes

2.2.1 General Concepts

Among several but similar definitions, in this research, attitude is considered the degree to which a person holds a favorable or unfavorable evaluation toward an object or behavior, and it develops from beliefs that people hold about the attitude object (Ajzen, 1991). The multidimensional aspect of attitudes, which possesses a wide range of cognitive, affective and behavioral associations, has also been recognized by many authors (Eagly & Chaiken, 2007) and will also be explored in this present study.

One of the most pervasive concepts of psychology and marketing, the importance of attitudes resides in the fact that, in many cases, it strongly influences and thus, helps predict behavior (Ajzen, 1991; Churchill & Iacobucci, 2010; Malhotra, 2005). For this reason, the present research will examine changes in attitudes (along with measures of behavioral intent) under matching and mismatching conditions.

Attitudes serve different (but related) psychological needs of adjustment (utilitarian and satisfaction/pleasure needs), ego defensive (handling internal conflicts, and of special interest in the psychology field), value expression (self-expression) and knowledge (need for consistency and standards) for consumers, those aspects being different motivational basis of the attitudes and, therefore, also subject to different techniques in the arousal, formation or change of attitudes. Furthermore, attitudes can be expressed both verbally and in nonverbal behaviors, including affective (feelings of liking and disliking) and cognitive elements (which describe the attitude object, its characteristics and relations to other objects). Attitudes toward specific objects or issues

should also be understood within the larger set of beliefs and attitudes of a person's value system (Katz, 1960).

Another important aspect of attitude is its structure. Although the distinction between affective and cognitive attitudes refers back to 1940's and has been explored under different areas (Breckler & Wiggins, 1989), Batra and Ahtola (1991) are among the most referenced researchers in the advertising literature about the different dimensions underlying consumers' attitudes. Important to notice, however, is that their relevance resides more in their effort in developing a scale to measure these dimensions than in presenting original theories about attitudes.

According to these authors, the hedonic and utilitarian dimensions of attitudes are based on different attributes of the products and also on their distinct purposes: sensory attributes focus on affective gratification and functional attributes focus on instrumental expectations. Additionally, from an advertising perspective, such differentiation is essential for the elaboration of an effective communication strategy, suggesting that hedonic products would require an affective appeal while utilitarian products would require an informative appeal (Batra & Ahtola, 1991).

The distinction between evaluation and affect was also defined and empirically evidenced by other authors. Breckler and Wiggins (1989) showed that evaluation refers to thoughts, beliefs and judgments about an attitude object while affect refers to emotional responses about that object. Furthermore, the authors indicated that both affect and evaluation correlated and accounted for significant variances in self-reported behaviors and global measures of attitudes (Breckler & Wiggins, 1989). Claeys, Swinnen and Vanden Abeele (1995) also empirically evidenced the 'think' and 'feel' distinctions of attitudes and the distinction of hedonic and utilitarian products using

laddering technique. In their study, the authors suggested 3 main characteristics that distinguish ‘think’ and ‘feel’ products: motives for buying, mode of processing and focus of concern. For ‘think’ products, motives for buying include, among others, problem solution or avoidance; the mode of processing is characterized as logical and rational; and the focus of concern is in the functional performance and tangible features. On the other hand, for ‘feel’ products, motives for buying include emotional wants and value-expressive motives; the mode of processing is characterized as holistic and image-based thinking; and the focus of concern is in intangible features and subjective meanings (Claeys et al., 1995).

2.2.2 Attitudes and Green Products

In the context of food products, of special interest for this research, according to Dubé and Cantin (2000):

> One's general predisposition or attitude toward an object is generally based on both affective and cognitive reasons, and what defines an attitude as being affect-based or cognition-based is more a matter of its position on one side or the other of a continuum anchored at its extreme by hypothetical pure-affect and pure-cognition bases. (p. 252)

This cognitive dimension is usually related to nutritional value, health consequences and convenience, while the affect dimension refers to good sensations, feelings and memories (Dubé & Cantin, 2000; Dubé, Cervellon, & Jingyuan, 2003). More importantly, the relative dominance of these dimensions varies by food product (e.g., affective bases dominating soft drinks attitudes, cognitive basis dominating

vegetable attitudes and milk attitudes being hybrid) and, therefore, persuasive communication should consider these differences (Dubé & Cantin, 2000).

Dubé et al. (2003) proposed a new hierarchical structure for food attitudes since the traditional two-basis model might lead to significant loss of important information. This hierarchical model has at its first level clusters of attributes nested at the second level within each of the two basis and, therefore, allows for a finer investigation of each basis. The cognitive basis includes, among other, attributes such as, calories, healthy and preparation while the affective basis include feelings, memories and taste, for example. The study conducted with French Canadians and Chinese citizens confirmed the predictive validity of this model, which was successful in predicting behavior intention, regardless of the attitude object being affect- or cognition-based (chocolate and milk, respectively). In fact, for the affect-based product used in this study, the authors identified a negative relationship between health attributes clusters and product attitudes, suggesting that for chocolate lovers enhanced nutritional and health attributes may lead to negative inferences about its sensorial qualities, which in turn has an unfavorable impact in the overall product attitude (Dubé et al., 2003).

In regards to green marketing strategies, the relation between attitudes and behavior is still under debate. Arvola et al. (2008) showed that attitudes might predict consumers' purchase intention of unprocessed foods (organic apples) as well as of processed foods (organic ready-to-cook pizzas) and, specifically, that sometimes affective attitudes can have a stronger role than the cognitive dimension. Dahm, Samonte and Shows (2009) showed that eco-friendly attitudes might also predict eco-friendly behaviors: in their study, students indicating positive attitudes toward organic foods were more likely to consume organic foods and to engage in healthy practices.

Nonetheless, behavioral intentions to purchase sustainable foods are not always consistent with positive attitudes toward sustainable behaviors, since other factors might influence the decision-making process (Vermeir & Verbeke, 2006). It is also known that consumers are not always willing to pay for the extra-costs associated with their own food-related demands (De Pelsmacker, Driesen, & Rayp, 2005; Wandel & Bugge, 1997).

2.3 Environmental Values and the New Ecological Paradigm (NEP)

While attitudes are positive or negative evaluations of specific entities under certain circumstances, values are relatively stable beliefs that people hold in a wide range of situations[3]. The importance of values - and in specific of environmental values - is that, among other factors, values are also believed to influence decisions (Dietz, Fitzgerald, & Shwom, 2005). Although, many findings have shown that even individuals highly concerned with environmental issues do not necessarily act accordingly in their daily behaviors (Kimann & Apaolaza-Ibáñez, 2006). One explanation for this is that "decisions are influenced by more than values, and behaviors are not always the result of thoughtful decisions" (Dietz et al., 2005, p.337).

Additionally, the Theory of Planned Behavior (Ajzen, 1991) also provides valuable insights of how attitudes and (salient) beliefs are related, to the extent that, according to this model, attitudes develop from the beliefs about the attitude object and, therefore, by eliciting those beliefs it is possible to assess attitude foundations (Ajzen, 1991).

In the context of environmentalism, according to Dietz et al. (2005), self-interest, traditionalism, openness to change, and specially altruism, are among the most

[3] Values may also be referred as moral principles and beliefs as 'understandings about the state of the world; they are facts as an individual perceives them' (Dietz et al., 2005, p. 346).

commonly identified values to hold strong relationship to pro-environmental behaviors. Furthermore, Kals, Schumacher and Montada (1999) emphasized in specific the importance of emotional motivations in explaining and predicting pro-environmental behaviors, in complement to the pure rational/cognitive approach. To this extent, since environmental issues frequently raise strong emotions, exploring the role of feelings in general is also of considerable importance (Dietz et al., 2005).

Several attempts have been made to measure environmental values that could help researchers in explaining and predicting pro-environmental behavior. For instance, the New Ecological Paradigm Scale or NEP Scale (Dietz et al., 2005) was developed with the purpose of measuring ecological orientation, by capturing beliefs about human impact on nature's balance, beliefs about limits for human activities' growth and beliefs about human's rights over nature. Endorsement of the NEP Scale reflects a pro-environmental orientation, however, its own authors call attention to the fact that although these beliefs influence behaviors, factors that could affect a strong NEP-behavior relationship under certain circumstances should always be considered (Dunlap et al., 2005). Recenty, Levine and Strube (2012) explored relationships between explicit and implicit measures of environmental values, knowledge about environmental issues, intentions to behave in an environmentally friendly manner and self-reported environmental behaviors for college students. Using the NEP Scale to measure explicit attitudes, the authors found this variable (and also knowledge) to be a strong predictor of intentions, which mediated the influence of explicit attitudes on environmental behaviors. Implicit attitudes were not significantly related to intention or behavior.

In regards to food products, the reason for exploring differences in the perceptions toward products among consumers with distinct levels of environmental

values - as proposed in this present research - is because values are also known to play an important role in consumers' attitude and behavior towards foods. For instance, by measuring personal values, attitude strength, attitudes and intention to buy GM foods[4], Honkanen and Verplanken (2004) showed that universalism and hedonism values are important antecedents of attitudes toward such foods, and that values and attitude strength are important constructs in explaining these attitudes, which in turn were strong predictors of behavioral intention to purchase (the more positive/less attitudes, the stronger/weaker the intention to buy). Honkanen, Verplanken and Olsen (2006) conducted a similar study regarding values, attitudes and choice of organic food, confirming that environmental values have a strong influence on attitudes towards organic foods and their intention of consumption (higher concerns leading to more positive attitudes and higher consumption intentions). Similarly, other works have also explored the importance of environmental concerns to understand environmentally friendly behaviors as related to food (Grunert & Juhl, 1995; Guido, Prete, Peluso, Maloumby-Baka, & Buffa, 2010; Thφgersen, 1999).

2.4 Environmental Claims Perceptions

2.4.1 General Concepts

The fact that the increase of consumers' environmental concerns may have a positive impact in their perceptions and choices of environmentally friendly products and brands is more than plausible (Hartmann & Apaolaza-Ibáñez, 2008) and research providing evidence about this is plentiful (D'Souza & Taghian, 2005; Hartmann, Apaolaza-Ibáñez, & Sainz, 2005; Hartmann & Apaolaza-Ibáñez, 2008; Kong & Zhang,

[4] Although GM claims are more related to risk perceptions regarding health issues, the study provides a rich framework for this present research related to the values-attitudes-behavior model towards food in general. Furthermore, universalism values with an emphasis on environmental scale items were used by the authors (Honkanen & Verplanken, 2004).

2012; Rokka & Uusitalo, 2008; Steinhart et al., 2013). Overall, consumers with high levels of environmental concerns are more likely to pay attention to environmental aspects of products and to purchase these green products (Schuhwerk & Lefkoff-Hagius, 1995). Nevertheless, practitioners and researchers still explore the conditions under which the effectiveness of green strategy can be enhanced (Kong & Zhang, 2012).

For instance, Montoro-Rios, Luque-Martinez and Rodriguez-Molina (2008) explored the mechanisms underlying environmental associations with brands, showing that the capacity of these environmental associations in enhancing brand attitudes depends on the product category and familiarity with the brand and, therefore, environmental strategies should be used with caution. In their study, only for frequently purchased brands and highly involved consumers in the purchase-decision, environmental beliefs relative to the brands had a significant effect on brand attitudes. Bickart and Ruth (2012) worked with all-purpose cleaners, showing that for consumers with low level of environmental concerns, the presence of an eco-label in a high- or low-familiarity brand had no effect on their ad or brand attitude, nor on purchase intention. On the other hand, consumers with high environmental concerns presented higher rates for these variables for familiar brands when the eco-labels were present.

2.4.2 Environmental Claims Perceptions and Green Products

Poelman, Mojet, Lyon and Sefa-Dedeh (2008) showed that people with different attitudes toward organic production were influenced differently on their evaluations of pineapples that carried environmental claims. In their initial analysis, when grouping all respondents, the authors did not notice any difference in their evaluations toward the product with organic claim, however, when separating subjects according to their initial

levels of attitudes, it was possible to notice that people with (initial) positive attitudes toward organic production perceived the products with claims more favorably. Similarly, the present research aims to investigate how consumers with different levels of environmental values may react differently to certain product-claims combinations.

One of the most similar works to this present research was conducted by Grimmer and Woolley (2012), in which the authors explored if consumers with different levels of environmental involvement varied in their responses to purchase intention when exposed to different message appeals (no claim, personal benefit claim and environmental benefit claim) applied to bottled water. In their study, the authors measured the three attitudinal components of environmental involvement (affective, cognitive/knowledge and behavioral) finding that only the affective component significantly influenced their purchase intention. That is, participants' overall level of environmental involvement did not moderate purchase intention, however, when the affect dimension was examined alone, those with higher levels of environmental affect presented significant greater purchase intention to the environmental benefit claim, while those with lower environmental involvement expressed greater purchase intention to the personal benefits claim.

The theoretical framework used by the authors comprised the Elaboration Likelihood Model (Petty & Cacioppo, 1986) to the extent that consumers with high environmental involvement would be more influenced by environmental benefit claim as it is "considered more relevant to making a meaningful and logical evaluation of the product" (Grimmer & Woolley, 2012, p. 8) while consumers with low environmental involvement would be more influenced by personal benefit claim as it "allows for a more impressionistic and 'peripheral' evaluation of the product and indeed produce a more

positive emotional response" (Grimmer & Woolley, 2012, p. 8). Vermeir and Verbeke (2006) also found that involvement, among other factors, has a significant influence on attitude, which strongly correlates with purchase intention of sustainable dairy products.

Another similar and important work to this present research regards to the research conducted by D'Souza and Taghian (2005). The authors obtained significant differences between cognitive and affective attitudes toward green ads among groups of consumers with high and low environmental concerns, showing that the first group generally had more positive affective and also cognitive attitudes toward the ads while the second group expressed disregard for the green ads.

Schuhwerk and Lefkoff-Hagius (1995) analyzed how consumers with distinct levels of involvement with the environment reacted to green laundry detergent ads with different appeals. For consumers with high levels of involvement, there was no significant difference in attitudes toward the ad and purchase intention between the different types of appeals (green appeal – 'You can save the planet while doing laundry!' vs. non-green/financial appeal – 'You can save money while doing laundry!') while for those with low involvement the green appeals generated better evaluations and higher purchase intentions.

2.5 Behavioral Intention

2.5.1 General Concepts

Many studies have explored the relationship of environmental values to stated purchase intention (PI), assuming that people are able to make decisions by examining their choices' outcomes and their effects on preferences (Dietz et al., 2005).

In the Theory of Planned Behavior (Ajzen, 1991), intention is considered the most proximal predictor of behavior to the extent that they capture motivations that

influence behavior. Therefore, in general, the stronger the intention (and also the behavioral control), the more likely individuals are to perform the behavior (Ajzen, 1991; Arvola et al., 2008). Studies have also found strong causal relation between cognitive and affective satisfaction toward products and the payment of premium price for those products. WTP is also considered a behavioral indicator that complements attitude measurements in identifying changes in perception toward products (Homburg, 2005). In this present research, WTP will also be used as an additional measure of behavioral/purchase intent rather than for recommendations regarding pricing of the products.

2.5.2 Behavioral Intention and Green Products

Batte, Hooker, Haab and Beaverson (2007) collected data on WTP for organic cereals from seven grocery stores located in Ohio, United States, by asking consumers how much more they would be willing to pay for a box of 100% organic breakfast cereal, after giving consumers a reference price of US$ 3.00 per box. The mean WTP calculated reached $0.45 per box, or about 15% more. In a research study conducted with European consumers, De Pelsmacker et al. (2005) found that these consumers were willing to pay an average price premium for fair-trade coffee of about 10%. The authors also pointed out, however, that the actual buying behavior in that market was not consistent with consumers' positive attitude toward ethical products and their reported intentions.

Grunert (2005) also emphasized that one should be cautious in interpreting WTP results, since most consumers buy a large amount of products without knowing the exact price of each one. This fact is also 'aggravated' since habitual purchases are the reality for most consumers. Nonetheless, WTP can still be considered as an important

indicator of how consumers value certain food attributes (Grunert, 2005). Voon, Ngui and Agrawal (2011) also showed that attitudes and subjective norms significantly influence WTP for organic foods.

Krystallis and Chryssohoidis (2005) found that WTP for organic food depend on perceived quality, trust in the certification and even brand. Laroche et al. (2001) found that women, married and with at least one child at home were the typical profile of people in the US who were willing to pay more for environmentally friendly products. In general, these women value warm relationships with other people, and often consider ecological issues when making purchases.

Similarly to this thesis approach, De Pelsmacker et al. (2005) used WTP for fair-trade coffee as a measurement of PI, which allowed for estimates regarding potential buyers for this product. Barber, Taylor and Deale (2010) also assessed wine tourists' WTP for environmentally friendly wines as an indicator of their PI. Similarly, while analyzing PI and WTP between a new and an established brand of spreading fat, Bower, Saadat and Whitten (2003) found WTP to positively correlate with PI, and that WTP was higher among people with stronger PI, for both types of spreading.

2.6 Summary

Although this literature review evidenced that there are still some contradictory findings among studies about matching effects between ad appeals and product types, the majority of these results still suggest that congruency effects can be expected most of the time, as can be seen from Table 1. Dubé and Cantin (2000), which provided a brief literature review about this topic in their research, also stated that the majority of these studies have been supportive of the match-superiority effects.

At this point is also important to recall that some of these works (Drolet & Aaker, 2002; Dubé & Cantin, 2000; Edwards; 1990; Edwards & Von Hippel; 1995; Fabrigar & Petty, 1999; Millar & Millar, 1990, Study 2) have frequently found that matching effects are more likely to persuade people with affect-based than with cognition-based attitudes (Drolet & Aaker, 2002; Dubé & Cantin, 2000). Not surprisingly, this literature review also evidenced numerous alternative explanations underlying the reasons and conditions for observing or not matching effects. Research executing content analysis of real ads (Dubé et al. 1996, Kim et al. 2009) also showed that food companies did not reach a consensus yet and frequently vary their food appeals strategies.

Clearly, what can be seen from these previous studies is that several factors may account as mediators for distinct ad appeal effectiveness, such as involvement, product category, environmental perceptions, familiarity, and others. And similar to these previous studies, this present research is interested in exploring only some of these aspects, notably, product type, environmental appeals, attitudes, WTP and PI. Furthermore differences will be explored between consumers with different levels of environmental values.

In regards to attitudes, although this has been recognized as a multidimensional construct (Batra & Ahtola, 1991), the impact of environmental claims in its hedonic and utilitarian dimension has been rarely studied. Even in food studies where emotion plays an important role, the distinction between both dimensions has been scarcely explored. However, to the extent that different product types may present different dominant attitude basis (Dubé & Cantin, 2000), it seems reasonable that exploring these differences may help clarifying understanding about matching effects.

The literature review about how consumers with different levels of environmental values may react distinctly to green appeals also contributes to the theoretical framework of this research, showing in general that highly concerned consumers are more likely to have greater WTP and purchase intentions for sustainable products. Furthermore these studies have also emphasized the importance of considering emotional aspects while looking for understandings about these consumers' behavioral intentions (Grimmer & Woolley, 2012).

2.7 Research Question and Hypotheses

The purpose of this study is to compare the effectiveness of environmental claims with emotional and informational appeals when applied to hedonic and utilitarian food products. According to studies about congruency effects, under matching conditions consumers are more likely to have stronger attitudes, purchase intentions and WTP (Choi et al., 2012; Dubé & Cantin, 2000; Edwards, 1990; Edwards & Von Hippel, 1995; Fabrigar & Petty, 1999; Rossiter et al., 1991; Vaughn, 1980, 1986). This means that environmental claims with informational appeal would be more effective when applied to utilitarian food products while environmental claims with emotional appeal would be more effective when applied to hedonic foods.

Furthermore, although few other studies have suggested mismatching effects (Millar & Millar, 1990) or mixed effects (Drolet & Aaker, 2002; Geuens et al., 2011; Kim et al., 2009; Steinhart et al., 2013), the present literature review showed that the majority of the previous research have been supportive of the match-superiority effects, as also found by Dubé and Cantin (2000). Within this context, the following is hypothesized:

- **H1:** the effects of environmental claims on consumers' (a) attitude toward the product and (b) behavioral intention are moderated by product type. Specifically,
- **H1a:** for utilitarian products, environmental claims with informational appeal will lead to stronger (a) attitude toward the product and (b) behavioral intention than claims with increased affective appeals.
- **H1b:** for hedonic products, environmental claims with increased affective appeal will lead to stronger (a) attitude toward the product and (b) behavioral intention than claims with informational appeals.

In regards to the level of environmental values, several studies suggest that consumers with stronger environmental values generally have more positive attitudes, higher WTP and/or purchase intentions toward products with green-appeals (Batte et al., 2007; Bickart & Ruth, 2012; D'Souza & Taghian, 2005; De Pelsmacker et al., 2005; Hartmann et al., 2005; Hartmann & Apaolaza-Ibáñez, 2008; Honkanen et al., 2006; Kong & Zhang, 2012; Poelman et al., 2008; Rokka & Uusitalo, 2008; Schuhwerk & Lefkoff-Hagius, 1995; Steinhart, Ayalon, & Puterman, 2013). Because of this, the congruency between claim and product type should not matter. Their environmental values are a stronger predictor of the effects.

Studies comparing specifically the reactions of consumers with high and low environmental values toward claims with informational and emotional appeal have been more scarce and, in some instances, contradictory. As previously detailed, Grimmer and Woolley (2012) showed that consumers with higher levels of environmental concerns generally presented greater purchase intention to an environmental benefit claim, while those with lower environmental involvement expressed greater purchase intention to a personal benefits claim. Similar results were found by Hartmann and Apaolaza-Ibáñezm

(2008), which suggested that environmental utilitarian benefits may enhance attitudes only for highly concerned consumers while well-being feelings might be more significant for low concerned consumers. Schuhwerk and Lefkoff-Hagius (1995) also showed that for consumers with low levels of environmental concern, green appeals focusing on personal gains generated better evaluations and higher purchase intentions; however, in their study, for consumers with high levels of environmental concerns there was no significant difference in attitudes and purchase intention between green claims with different appeals.

Overall, from these studies, it seems that consumers with low environmental values are more susceptible to advertising strategies, especially the ones focusing on enhancing their feelings (of well-being, personal gain, altruism, etc.) while consumers with high environmental values might be less susceptible to manipulations in the appeals of environmental information. Most importantly, it is fundamental to notice that these studies did not measure if participants held emotional or cognition-based attitudes toward these claims and/or the products and, therefore, relying only on them could lead to stating wrong hypotheses. For this reason, and taking into consideration well-established definitions that values are relatively stable beliefs that people hold in a wide range of situations (Dietz et al., 2005), it is hypothesized that:

- **H2:** the effects of environmental claims on consumers' (a) attitude toward the product and (b) behavioral intention differ among consumers with distinct levels of environmental values.

Finally, a research question aims for new understandings, since no research has been conducted about how such claims may influence, in distinct manners, dimensions of consumers' attitude among people with varying levels of environmental values:

- **RQ:** How do the different (mis)matching conditions influence the affective and cognitive dimensions of attitudes among people with distinct levels of environmental values?

CHAPTER 3: METHODOLOGY

3.1 Research Design

This study used a 2 (product category: utilitarian and hedonic) x 3 (environmental claim: utilitarian, hedonic and not present) factorial design. The two treatments without any environmental claims were control groups for the utilitarian and the hedonic products, and allowed determining the directions of changes in the dependent variables (such as an increase or decrease in respondents' attitudes toward the products with claims). In this research, it is worth noting that the independent/experimental variables under study are only some among many determining conditions regarding a probabilistic relationship and, therefore, this present research aims to *infer* that a relationship might exist between variables (Churchill & Iacobucci, 2010). More specifically, that (1) under matching conditions people would be more likely to have higher (overall) attitudes, WTP and purchase intentions, and that (2) these outcomes may vary depending on subjects' level of environmental values. This research design also allowed investigation of main effects (of an independent variable on a dependent variable) and interaction effects (of an independent variable on a dependent variable in different levels of the other independent variable).

Furthermore, since causal research is interrelated with both exploratory (literature review) and descriptive research in a continuous process (Churchill & Iacobucci, 2010), frequency and relationships between variables were also explored.

3.2 Internal and External Validity

Internal validity refers to the 'ability to attribute the effect that was observed to the experimental variables, and not to other factors' (Churchill & Iacobucci, 2010, p. 107). Therefore, to improve the internal validity of this research, Qualtrics' randomizations

features were used to assure that subjects were randomly assigned to one of the four possible treatment conditions. According to Shadish, Cook and Campbell (2002) random assignments may reduce the influence of extraneous sources of variation (confounds) to the extent that it generates groups probabilistically similar on the average and, therefore, outcome differences are likely to be attributed to the manipulations and not to prior differences existent among participants. Furthermore, a pre-test was conducted aiming that the products chosen in this research were as similar as possible in terms of perceived healthiness, likeability and involvement. Similarly, the labels chosen were previously reported (also in the pre-test) as equally truthful and reliable. The objective of this procedure was to assure that, from a consumer perspective, the main difference among the treatments could be attributed mainly to the level of utilitarism and hedonism of the products and labels.

External validity refers to the 'extent to which the effect can be generalized' (Churchill & Iacobucci, 2010, p. 107) to other people, treatment, measurement variables, and settings (Shadish et al., 2002), and in this regard the method of sampling plays an important role. In this research, a convenience sample of US citizens with more than 18 years old was used both in the pre-test and in the final survey and, therefore, generalizations are limited to this sample and conditions similar to the ones in this study.

Construct validity measures aim to assure that the manipulations and measurements used in the instrument really measure the cause and effects constructs of interest (Shadish et al., 2002). Although challenging, one of the ways to assure construct validity is to relate a construct to others (not just one) and to use well founded and tried theories (Churchill & Iacobucci, 2010). To this extent, an extensive and critical

literature review was conducted and hypotheses were elaborated according to the bulk of previous research findings that could adequately support these statements. The literature review also allowed for the understanding and selection of well-defined constructs, multiple questions and scales that have been successfully used in several researches.

3.3 Independent Variables

3.3.1 Hedonic and Utilitarian Food Products

The choice of the final two products used in this present research was based in the results obtained through a pre-test. This pre-test contained a list of 37 foods that were chosen from a larger set of products originally compiled through visits to national consumer product retailers (Walmart, Meijer and Target) located in a mid-sized city in the Midwest of the United States. These food products consisted of types of foods frequently available at the supermarket and also frequently consumed by most people such as, yogurt, milk, coffee, orange juice, chocolate, pasta, pizza, etc.

This list of products also contained what the researcher initially believed to be the hedonic version of each product, as long as this version was also frequently available at the supermarket stores and were potentially consumed with a high frequency (e.g., ‘plain granola’ bar and ‘granola bar, with chocolate chips’).

Detailed results of the pre-test, pilot and final instrument are discussed in the instrumentation section of this research.

3.3.2 Emotional and Informational Claims and Labels

A large set of possible environmental claims was selected in a similar way as the food products, and also using a pre-test. Visits to supermarkets revealed a wide range of potential environmental claims that could be used, but only one choice was included

in the pre-test (‘environmentally friendly’) since it appeared very frequently in the food packages.

Another important point to notice refers to the organic labels, not used in this study despite being commonly found in the supermarkets. Previous works have found that organic labels may increase health perceptions about food products (Honkanen et al., 2006; Schuldt & Hannahan, 2013). Also, this label is commonly associated with the traditional USDA certified stamp and, therefore, manipulations of this label could affect consumers’ trust. Therefore, to avoid the potential influence of confounding effects in this research, the organic label was not used. No real labels were used to avoid confounds of previous brand experiences.

3.3.3 Environmental Values

To measure participants’ level of environmental values, the New Ecological Paradigm (NEP) Scale (Dunlap et al., 2000) was used. This scale was included only in the pilot test and in the final instrument, and was chosen because it has been frequently used by researchers to measure environmental values due to its satisfactory levels of reliability in a variety of studies (Steg & Vlek, 2009).

Due to length and resources constraints, the scale used in this research was a shorter version composed by 6 of its 15 original items, but the original wording was preserved so agreements with the odd-numbered items and disagreements with the even-numbered items would indicate proecological worldviews. The five point scale items ranged from strongly agree to strongly disagree. In meta-analysis of studies using different version of the NEP Scale (from 5 to 15 items) over the last years, Hawcrof and Milfont (2010) reviewed 69 studies from 36 countries. Only three of these studies used the 6 item scale and a US representative sample, with their Cronbach alpha averaging

.73. The NEP Scale was administered after the questions referring to attitudes, WTP and PI to avoid priming-type effects.

3.4 Dependent Variables

3.4.1 Attitudinal Measures

In the pre-test, the cognitive and affective attitude scale (HED/UT Scale) developed by Voss, Spangenberg and Grohmann (2003) was used to measure and distinguish both the hedonic and the utilitarian dimensions of participants' attitudes, and included a total of 10 items on a five point scale (utilitarian: effective/ineffective, helpful/unhelpful, functional/not functional, necessary/unnecessary, practical/impractical; and hedonic: not fun/fun, dull/exciting, not delightful/delightful, not trilling/thrilling, enjoyable/unenjoyable). This scale not only addresses important fallacies of previous attitude scales (such as Batra & Ahtola, 1992 and also Crowley, Spangenberg, & Hughes, 1992), but also has proven to hold satisfactory levels of reliability when tested for different products, including food.

In the pilot study and in the final instrument three general evaluative word pairs (good/bad, desirable/undesirable, positive/negative) from a scale developed by Crites, Fabrigar and Petty (1994) were also included. This additional attitude scale (overall attitude) allowed the execution of further analyses, such as the impact of the hedonic and the utilitarian dimensions in the global/overall evaluation of the food product.

3.4.2 Behavioral Intention Measures

Two questions to access behavioral intentions were formulated, one regarding WTP and another about PI. As already stated, in this present research WTP will be used as an additional measure of attitude and also as a measure of behavioral intent, rather than for recommendations regarding pricing of the products.

Although there is an extensive debate on the appropriate method for accessing WTP (Donaldson, Thomas, & Torgerson, 1997; Lusk & Hudson, 2004), in essence, all of them agree that price is still one of the most important parameters for predicting consumers' food choices (Grunert, 2005).

After a critical review, it was decided to provide participants with a reference price from which they would write the new (absolute) value they would be willing to pay for a product with green claim presented to them. It is worth noting that in a recent research, van Doorn and Verhoef (2011) tested different measures of WTP for organic products (including this simple open-ended format) which showed consistent results across the various studies conducted. Furthermore, studies have found strong causal relation between cognitive and affective satisfaction toward products and the payment of premium price for those products. WTP is also considered a behavioral indicator that complements attitude measurements in identifying changes in perception toward products (Homburg, 2005; Rao & Monroe, 1996).

The WTP question used in our research was: 'What is the price you would be willing to pay for this product? A conventional (non-environmentally friendly) product of the same type and size pictured above is priced at around US$ 3.50'. The reference price varied according to the product being depicted.

To assess purchase intention, an adapted question from Kong and Zhang (2012) was used. Participants had to answer the question 'How likely is it that you would purchase this product?' followed by a five point scale anchored from very unlikely to very likely[5].

3.5 Instrumentation

[5] Kong and Zhang (2012) original scale had 3 items: likely/unlikely, probable/improbable, possible/impossible.

3.5.1 Pre-test Procedures

The pre-test of this research was created in Qualtrics, a web-based tool for building surveys. Participants were randomly assigned to answer only 1 of 12 possible treatments/questions about food products and labels' designs with the objective that participants would not be influenced by other previous questions and also to avoid comparisons between the labels and also between certain products (e.g., grilled chicken and fried chicken, separated into different treatments). The ten treatments about the food products were about their perceived hedonism, utilitarism, healthiness, likeability and involvement, and for each of these five variables there were two separate groups of products (healthy and unhealthy), totaling the ten conditions. The two treatments about the labels contained the same attitude scale to assess their emotional and cognitive attitudes toward each of the two different labels. At the end, all participants answered to short questions about their purchase habits, their favorite vegetables and fruits, age and gender. The survey was designed to be taken in about 4 minutes.

Participants located in the United States and above 18 years old were recruited through Amazon Mechanical Turk (MTurk), an online marketplace where individuals sign up to participate in on-line tasks in return for monetary compensation. Since this survey was designed to take only about 4 minutes, respondents were paid $0.40 for their participation. For each treatment, a sample of 30 people was recruited ($n = 360$ total) and appropriate measures were taken to prevent individuals to access the survey link more than once.

Online surveys have the advantage of being a low-cost and time-efficient instrument for data collection, especially in cases where the sample size is large and widely distributed geographically (Sue & Ritter, 2007).

3.5.2 Pre-test Results

A total of 360 people answered the pre-test survey ($n = 30$ for each of the 12 treatments). In every treatment there was a 'skip this' item that was used to check the quality of responses. Those people who gave an answer to this item and/or left too many items blank in their responses were deleted from the analysis and these procedures reduced the sample size to $n = 340$ valid answers. The average age of the sample was 33 years old ($n = 339$, $SD = 11$), about 56% of males ($n = 189$), 44% of females ($n = 151$).

One of the possible explanations for having just 20 invalid answers is that every participant that takes a survey in MTurk can be (publicly) rated based on the quality of their responses and, therefore, it is of their own interest that they engage seriously in any survey they take. Furthermore, for every food product they had to evaluate, items such as 'I do not eat this food' or 'I do not buy this food' were also included, with the objective that participants would not feel obliged to provide an answer for the mere purpose of receiving a good rate for their participation.

The first step to identify the most appropriate hedonic and utilitarian products to be used in this research was to construct a scatterplot of the 37 products (Figure 1). The x-axis represents the perceived utilitarism of the food products while the y-axis represents the perceived hedonism of the foods (recall that 'delightful/enjoyable' and 'practical/functional' were items of the attitude scale developed by Voss et al. (2003)). Lines were drawn in the scale midpoint (3.00) to help visualization.

In order to answer the research question and hypotheses, the hedonic and utilitarian food products should be located in quadrants I and III, respectively. Products located in quadrant I are low in perceived utilitarism (below the practical/functional scale

midpoint) but high in perceived hedonism (above the delightful/enjoyable scale midpoint). Conversely, foods in quadrant III are highly utilitarian and low in hedonism. Food products located in quadrants II and IV are high and low in both levels of utilitarism and hedonism, respectively and, therefore, are not of interest in this research.

Initially the scatterplot suggests 'café latte with whipped cream' (M_{UTIL} = 2.00, n = 20, SD = 1.34; M_{HED} = 3.88, n = 25, SD = 1.30) and 'fat-free plain, unsweetened yogurt' (M_{UTIL} = 3.75, n = 16, SD = 1.18; M_{HED} = 2.39, n = 28, SD = 1.52) as the most appropriate products for this research. Additional one sample t-tests, with a 95% confidence interval, showed that cookies, milk chocolate, fried chicken, fat-free mozzarella cheese, ketchup, sugar, cocoa powder, flour and vegetable oil – although located in quadrants I and III – were not statistically different form the hedonic and/or the utilitarian scale midpoint value (3.00). Furthermore, choosing 'café latte with whipped cream' and 'fat-free plain, unsweetened yogurt' is also an appropriate choice since they belong to the same product category (dairy products) and also because they are both ready for final consumption (as opposed to 'flour', for example).

Table 2 brings the details of the independent t-tests made with 'café latte with whipped cream' and 'fat-free plain, unsweetened yogurt' (hereafter, simply referred as coffee and yogurt), indicating that they are different in terms of hedonism and utilitarism, but similar in their levels of involvement and likeability, just as intended (their perceived healthiness, however, was statistically different). Recall that every variable under analysis were in different treatments and, therefore, answered by different people. For this reason, independent t-tests were conducted.

In regards to the labels, initially the scales reliabilities were checked (Table 3). For each label, participants answered to items that assessed their affective and

cognitive attitudes, as well as their perceived truthfulness. All the scales presented satisfactory levels of reliability as indicated by the Cronbach's alpha values ($\alpha \geq .70$).

Next, paired t-tests (Table 4) and independent t-tests (Table 5) were conducted for the labels. Through a paired t-test, the results showed that the manipulations were successful for the informational label, since the cognitive attitude toward the label was significantly higher than its affective evaluations. For the emotional label, although a paired t-test showed no significant difference between the cognitive and affective attitudes, when conducting independent t-tests between the labels it is possible to observe that the emotional label did evoke more feelings/emotions from participants since it presents a higher level of affective attitude when compared to the information label. Therefore, this label can still be used to test the hypotheses and answer the research question of this research. Finally, as intended, the labels were perceived to have the same level of truthfulness (Table 5).

3.5.3 Final Instrument Content and Procedures

The pilot of this research was also created in Qualtrics to test the final instrument content. Initially, participants answered to a screening question to guarantee that they consumed dairy products at least once a week. If eligible, they were presented with the IRB informed consent and then randomly assigned to answer only 1 of 6 possible treatments. All treatments were identical, except for the food being evaluated (yogurt with utilitarian label; yogurt with hedonic label; coffee with utilitarian label; coffee with hedonic label; yogurt with no label; coffee with no label, Appendix A). Each treatment was composed by 3 sets of questions/dependent variables: attitude, WTP and PI. As for the WTP question, the reference price for the yogurt was initially set at $2.50 and the coffee price at $3.50, based on the usual market price of these products. Next, all

participants answered to the NEP Scale and to basic purchase habits and demographic questions. The scales' items and questions' wording were already presented in previous sections of this study.

3.5.4 Pilot Procedures and Results

Participants located in the United States and above 18 years old were recruited through Mturk. Since the instrument was designed to take only about 4 minutes, respondents were paid $0.40 for their participation. For each treatment, a sample of 20 people was recruited (n = 120 total) and appropriate measures were taken to prevent individuals to access the survey link more than once.

After data collection, SPSS® 21.0 for Windows™ was used to assess the scales reliabilities and to check for eventual corrections in the final instrument content.

In regards to the attitude scales (Table 6), most of them had an alpha reliability above .70, an index considered adequate (Pallant, 2010). Although some exceptions were noticed for the truthfulness scale, because that was composed by only 2 items it was decided not to alter this scale. Furthermore, for the majority of the treatments the truthfulness scale reached an alpha above .70.

The NEP Scale, composed by 6 items, reached an alpha of .70 and, therefore, was not altered. The only adjustment in the instrument occurred in the reference price of the yogurt (WTP question) because many participants assigned a value lower than $2.50 for the product being evaluated. Since the median price assigned by participants was $2.00 in the control treatment of this product, this became the new reference price for the yogurt in the final instrument. Except for this modification, the final instrument content and procedure were identical to the pilot test.

3.6 Data Analysis

SPSS® 21.0 for Windows™ was used to analyze all data in this research. Cronbach's alpha was used as a measure of internal consistency for the scales. To answer H1, H1a and H1b, a 3x2 factorial ANOVAs and independent t-tests were conducted for each dependent variable (attitude, WTP and PI). To answer H2, Linear Regression was used to test models for each dependent variable. The RQ was answered by executing these same analyses for the cognitive and affective attitudes separately.

CHAPTER 4: RESULTS

4.1 Demographics

An initial sample of 615 participants above 18 years old answered the online survey; however, after inspecting the quality of the responses, a sample of 566 (92%) valid responses was left. Most of the answers discarded were from participants that have marked the 'skip this' items (used intentionally to check the quality of the responses).

The demographic characteristics captured in the survey were gender, age, annual household income, as well as the frequency they buy foods with labels suggesting they are better for the environment.

In the final sample of $n = 566$, 36.7% were females ($n = 208$) and 63.3% were males ($n = 358$). The age range was 19 to 81 years old, with a mean of 31 years old ($n = 566$, $SD = 10.12$). The annual household income mean was \$48,053.10 ($n = 509$, $SD = 36{,}226.47$, ranging from \$0 to \$257,000). According to the United States Census Bureau (2012a), the US population in this age range is composed by 51% of females and 49% of males, with a mean of 46 years old. The household income mean in the US is \$71,317 (United States Census Bureau, 2012b).

For the question 'when buying foods in general I prioritize products with labels suggesting it is better for the environment', the answers were: 26.5% ($n = 150$) never or almost never; 39.2% ($n = 222$) some of the time; 16.1% ($n = 91$) about half of the time; 14.8% ($n = 84$) most of the time; 3.4% ($n = 19$) always or almost always. Clearly, for the majority of subjects, buying foods with environmental labels is not a priority.

4.2 Scales Reliabilities

4.2.1 Attitude Scales

Cognitive and affective attitudes were measured using Voss et al. (2003) scales. Each scale was composed by 5 items and the attitude scores ranged from 1 (e.g., not functional, unenjoyable, etc.) to 5 (e.g., functional, enjoyable, etc.). The cognitive attitude scale had a range of standard deviations from .70 to .83, while the affective attitude scale presented standard deviations from .66 to 1.08 across the six conditions. Overall attitudes were measured using 3 items from Crites et al. (1994) scale with scores from 1 (e.g., undesirable) to 5 (e.g., desirable) and standard deviations ranging from .76 to 1.07 across the conditions (Table 7).

The truthfulness scale was composed by only 2 items ranging from 1 (not truthful, unreliable) to 5 (truthful, reliable) and with standard deviations ranging from .64 to .79 (Table 7).

Similar to the results obtained in the pilot test most attitude scales had an alpha reliability above .70 (α=.85 for the cognitive scale; α=.92 for the affective scale; α=.84 for the overall attitude scale), although the truthfulness scale composed by only two items continued to present reliabilities below this value (α=.65) (Table 8).

4.2.2 NEP Scale

The NEP scale was composed by 6 items derived from Dunlap et al. (2000) original scale. The items ranged from 1 (strongly disagree) to 5 (strongly agree), with higher means indicating stronger pro-ecological values. All participants answered to this scale (n=566), reaching a mean score of 3.85, a standard deviation of .80, and Cronbach's alpha of .77. Previous works using the NEP Scale with a non-student sample from US reached mean scores ranging from 3.2 (Pienaar, Lew & Wallmo, 2013), 3.7 (Hawcroft & Milfont, 2010 – average from works published after 2005, from a US representative sample) and 3.8 (MacMillan Uribe, Winham & Wharton, 2012).

4.3 Descriptive Analysis of Variables of Interest

4.3.1 Attitudes

Table 9 brings detailed results for attitudes' scales across the six treatments. Each treatment had a sample size above 85 participants. From this table is also possible to notice that none of the products were evaluated negatively by the participants since the overall attitude means are all above 3.0. The lowest score was observed for the yogurt in the control condition (n = 97, M = 3.30, SD = 1.07) and the highest score was observed for the hedonic matching condition (n = 98, M = 4.10, SD = .76). For the perceived truthfulness item, none of the products were judged as deceptive by participants (means above 3.0).

4.3.2 Behavioral Intention

The PI question had a score ranging from 1 (very unlikely) to 3 (neither unlikely, nor likely) to 5 (very likely). The standard deviations of this question ranged from .75 to 1.40 across the conditions. For the yogurt, although participants' overall attitude and perceived truthfulness were favorable across all conditions, the PI scores were all below 3.0. For the coffee, which the overall attitude and perceived truthfulness were also favorable, the PI was (slightly) above 3.0 across the treatments (Table 10).

For the WTP, across all yogurt conditions the mean prices were below or only close to the reference price of $2.00. For the coffee in the control condition the mean price was also below the reference price of $3.50 (Table 10).

4.4 Correlations

As expected, there were observed associations among all the dependent variables. There was a positive correlation between the overall attitude and the PI, r = .71, n = 565, p = .00, with a more positive attitude associated with stronger purchase

intentions. There was also a correlation between the overall attitude and the WTP, r = .43, n = 560, p = .00, with a more positive attitude associated with higher prices consumers would be willing to pay for the products. The correlation between PI and WTP was of r = .42, n = 561, p = .00.

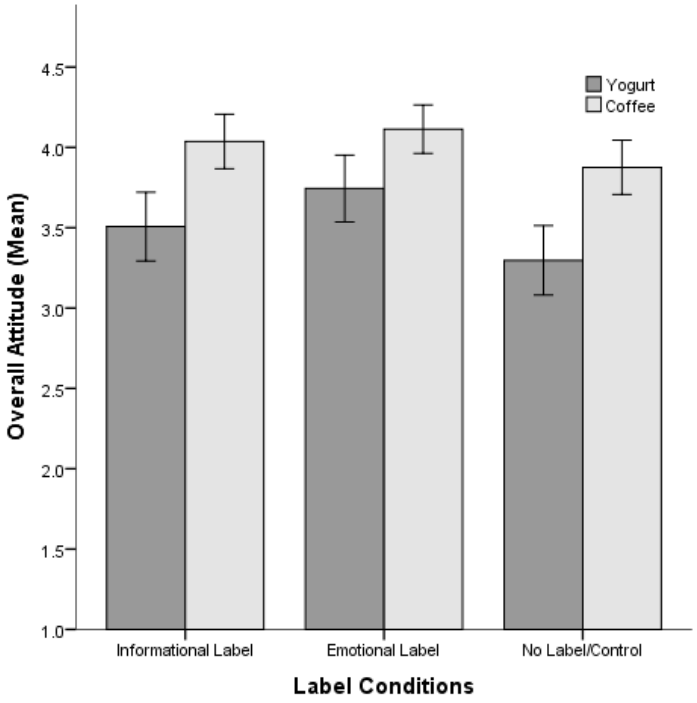
There were some associations between the independent variables and the dependent variables, however, the strength of the correlations were small or non-existent, such as between perceived truthfulness and NEP (r = .06, n = 565, p = .18) (Table 11).

4.5 Tests of Hypotheses

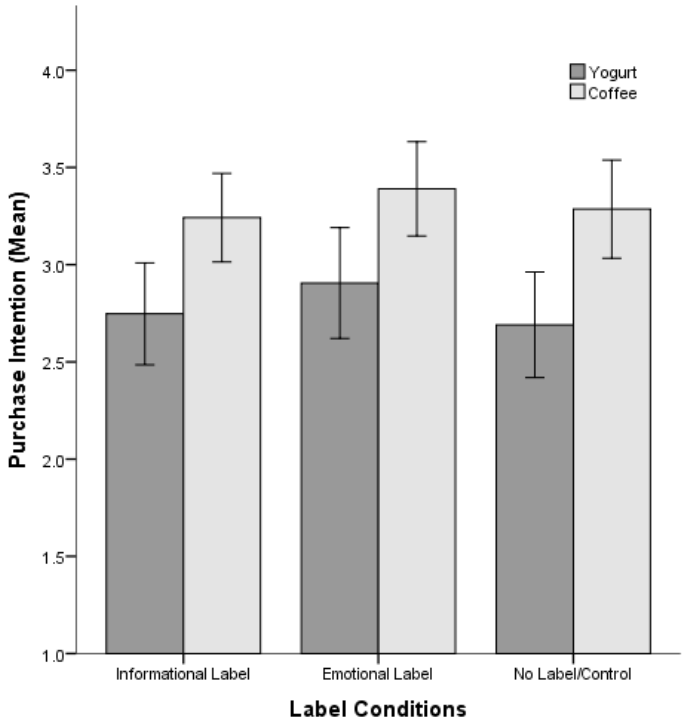
> **H1:** the effects of environmental claims on consumers' (a) attitude toward the product and (b) behavioral intention are moderated by product type.

To test if the influence of the environmental labels on attitude and behavioral intention differs across utilitarian or hedonic[6] foods, a 3 (label: informational vs. emotional vs. absent/control) x 2 (food: utilitarian/yogurt vs. hedonic/coffee) analysis of variance (ANOVA) was executed. The interaction effect between the labels and the foods was not statistically significant for the overall attitude (F (2, 558) = .68, p = .51, Graph 1), neither for the PI (F (2, 559) = .11, p = .90, Graph 2) nor for the WTP[7] (F (2, 554) = 3.00, p = .05[8], Graph 3). *Therefore, H1 was not supported.*

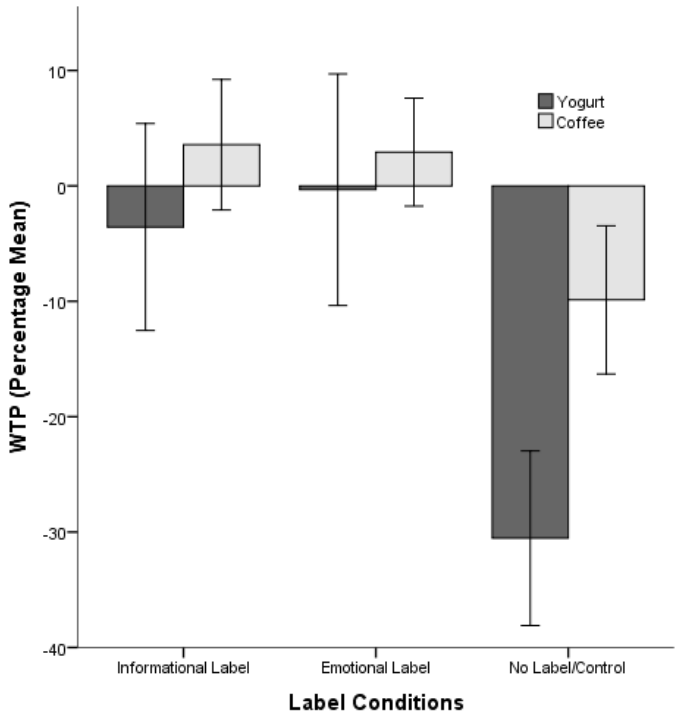
[6] The utilitarian food (yogurt) is also perceived as healthy by respondents. On the other hand, the hedonic food (coffee) is perceived as unhealthy.
[7] Since the reference prices for the yogurt ($2.00) and the coffee ($3.50) were different, in the data analyses the WTP variable was considered as percentages.
[8] Following Pallant's (2010) recommendations, since Levene's Test of Equality of Error Variances indicated that the variance of the WTP across the treatments was not equal, a more stringent significance level (.01) was considered.



Graph 1. Overall attitude means for yogurt and coffee given as a function of the labels. Error bars show standard errors of the mean.



Graph 2. Purchase intention means for yogurt and coffee given as a function of the labels. Error bars show standard errors of the mean.



Graph 3. WTP percentage means for yogurt and coffee given as a function of the labels. Error bars show standard errors of the mean.

In regards to main effects, for the overall attitude there was a main effect of product (F (1, 558) = 40.10, $p < .001$, $\eta_p^2 = .07$ / M_{hed}[9] = 4.01, SD = .80 / M_{util} = 3.52, SD = 1.05) and a main effect of label (F (2, 558) = 6.59, p = .001, $\eta_p^2 = .02$). Post-hoc comparisons using the Tukey HSD test indicated that the mean score in the emotional label condition (M = 3.93, SD = .914) was significantly different from the control condition (M = 3.58, SD =.995). The informational label (M = 3.79, SD = .951) did not differ statistically from the emotional label condition or from the control condition.

For the PI, there was also a main effect of product (F (1, 559) = 24.47, $p < .001$, $\eta_p^2 = .04$ / M_{hed} = 3.31, SD = 1.18 / M_{util} = 2.78, SD = 1.33) but no main effect of label (F (2, 559) = .98, p = .38). For the WTP, there was a main effect of product (F (1, 554) = 11.50, p = .001, $\eta_p^2 = .02$ / M_{hed} = -.87, SD = 27.72 / M_{util} = -11.84, SD = 45.20) as well

[9] M_{hed} denotes the mean for the hedonic food and M_{util} denotes the mean for the utilitarian food.

as a main effect of label (F (2, 554) = 20.79, p < .001, η_p^2 = .01). Tukey HSD test indicated that the mean score in the emotional label condition (M = 1.33, SD = 38.26) was significantly different from the control condition (M = -20.71, SD = 35.71). The informational label (M = .14, SD = 35.40) also did not differ statistically from the emotional label condition but it did differ from the control condition.

> **H1a:** for utilitarian products, environmental claims with informational appeal will lead to stronger (a) attitude toward the product and (b) behavioral intention than claims with increased affective appeals.

To test H1a, independent t-tests were conducted. For the overall attitude, there was no significant difference in scores between the informational label (M = 3.51, SD = 1.00) and the emotional label (M = 3.74, SD = 1.02 / t (179) = -1.58, p = .12, 2-tailed / mean difference = -.24, 95% CI: -.53 to .06). For PI, there was also no significant difference in scores between the informational label (M = 2.75, SD = 1.23) and the emotional label (M = 2.91, SD = 1.40 / t (180) = -.81, p = .42, 2-tailed / mean difference = -.16, 95% CI: -.55 to .23). The same was observed for the WTP, between the informational label (M = -3.56%, SD = 42.09) and the emotional label (M = -.33%, SD = 49.24 / t (180) = -.48, p = .64, 2-tailed / mean difference = -3.24, 95% CI: -16.70 to 10.22)[10]. *Therefore, H1a was not supported.*

> **H1b:** for hedonic products, environmental claims with increased affective appeal will lead to stronger (a) attitude toward the product and (b) behavioral intention than claims with informational appeals.

[10] One-way ANOVA indicated no differences in perceived truthfulness across the treatments (F (2, 277) = 1.30, p = .28). Therefore, the labels were not considered deceptive, and there was also no difference between the emotional and the informational label in terms of their perceived truthfulness.

To test H1b, independent t-tests were also conducted. For the overall attitude, there was no significant difference in scores between the informational label (M = 4.04, SD = .83) and the emotional label (M = 4.11, SD = .76 / t (193) = -.67, p = .51, 2-tailed / mean difference = -.08, 95% CI: -.30 to .15). For PI, there was also no significant difference in scores between the informational label (M = 3.24, SD = 1.12) and the emotional label (M = 3.39, SD = 1.22 / t (193) = -.88, p = .38, 2-tailed / mean difference = -.15, 95% CI: -.48 to .18). The same was observed for the WTP for the informational label (M = 3.57%, SD = 27.62) and the emotional label (M = 2.92%, SD = 23.47 / t (191) = .18, p = .86, 2-tailed / mean difference = .65, 95% CI: -6.62 to 7.91)[11]. *Therefore, H1b was not supported.*

> **H2:** the effects of environmental claims on consumers' (a) attitude toward the product and (b) behavioral intention differ among consumers with distinct levels of environmental values.

Linear regression analysis was used to test H2. For the overall attitude, the regression model (R^2 = .11, F (11, 552) = 6.40, p < 0.001) yielded only a main effect of product (β = -1.48, t (552) = -2.39, p = .02). The expected interactions between the labels and values were not observed, indicating that the influence of the labels on the overall attitude was not significantly different among consumers with distinct levels of environmental values (Table 12).

For the PI, the regression analysis (R^2 = .06, F (11, 553) = 3.44, p < 0.001) yielded a main effect of product (β = -2.70, t (553) = -3.19, p < .001) and an interaction effect between the food product and the level of environmental values (β = .55, t (553) = 2.54, p = .01). The expected interactions between the labels and values were not

[11] One-way ANOVA indicated no differences in perceived truthfulness across the treatments (F (2, 285) = 1.58, p = .21).

observed. For the WTP, the regression analysis (R^2 = .11, F (11, 548) = 6.33, p < 0.001) yielded no significant effects (Table 12). *Therefore, H2 was not supported.*

4.6 Research Question

> **RQ:** How do the different (mis)matching conditions influence the affective and cognitive dimensions of attitudes among people with distinct levels of environmental values?

To answer the research question, the same analyses executed before were also conducted, but separately for the cognitive and affective attitudes. The 3x2 ANOVA indicated no interaction effects between the labels and the foods, neither for the cognitive attitude (F (2, 556) = .97, p = .38), nor for the affective attitude (F (2, 556) = 3.53, p = .03[12]). For main effects, for the cognitive attitude there was a main effect of product (F (1, 556) = 118.41, p < .001, η_p^2 = .18 / M_{hed} = 2.89, SD = .72 / M_{util} = 3.59, SD = .80) but no main effect was noticed for the labels (F (2, 556) = 2.14, p = .12). For the affective attitude there was a main effect of product (F (1, 556) = 314.92, p < .001, η_p^2= .36 / M_{hed} = 3.90, SD = .73 / M_{util} = 2.60, SD = 1.02) as well as a main effect of labels (F (2, 556) = 8.17 p < .001, η_p^2 = .03). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the emotional label condition (M = 3.45, SD =1.07) was significantly different from the control condition (M = 3.06, SD =1.16 / mean difference = .39, p < .001, 95% CI: .18 to .60).

To understand how the labels might exert different impact on the cognitive and affective attitudes depending on the type of food product they were applied to, independent t-tests were conducted. For the yogurt, in the case of the cognitive attitude, there was a significant difference between the condition with the informational label (M =

[12] Following Pallant's (2010) recommendations, since Levene's Test of Equality of Error Variances indicated that the variance of the affective attitude across the treatments was not equal, a more stringent significance level (.01) was considered.

3.49, *SD* = .82) and the condition with the emotional label (*M* = 3.72, *SD* = .75 / *t* (179) = -2.00, *p* = .05, 2-tailed / mean difference = -.23, 95% CI: -.46 to .00). For the affective attitude the difference was also significant between the informational label (*M* = 2.55, *SD* = .89) and the emotional label (*M* = 2.99, *SD* = 1.09 / *t* (179) = -2.52, *p* = .01, 2-tailed / mean difference = -.37, 95% CI: -.66 to .08).

For the coffee, in the case of the cognitive attitude, there was no significant difference between the condition with the informational label (*M* = 2.91, *SD* = .72) and the condition with the emotional label (*M* = 2.93, *SD* = .74 / *t* (191) = -.18, *p* = .86, 2-tailed / mean difference = -.02, 95% CI: -.23 to .19). For the affective attitude there was also no significant differences between the informational label (*M* = 3.90, *SD* = .67) and the emotional label (*M* = 3.97, *SD* = .78 / *t* (192) = -.64, *p* = .52, 2-tailed / mean difference = -.07, 95% CI: -.27 to .14).

Regression analyses were executed to understand the effects of the labels on cognitive and affective attitudes among consumers with distinct levels of environmental values. For the cognitive attitude, the regression analysis (R^2 = .21, *F* (11, 550) = 13.47, *p* < 0.001) yielded an interaction effect between the food product and the level of environmental values (*β* = .43, *t* (550) = 3.27, *p* < .001). The expected interactions between the labels and values were not observed, indicating that the influence of the labels on the cognitive attitude was not significantly different among consumers with distinct levels of environmental values (Table 13).

For the affective attitude, the regression analysis (R^2 = .39, *F* (11, 550) = 31.84, *p* < 0.001) yielded a main effect of product (*β* = -2.31, *t* (550) = -3.95, *p* < .001) only and, again, the expected interactions between the labels and values were not observed (Table 13).

CHAPTER 5: CONCLUSION

5.1 Overview

The purpose of this study was threefold. First, it aimed to contribute to the bulk of research testing congruency effects between ad appeals and product types: although the majority of previous research has suggested significant congruency effects, there was also a number of other studies indicating contradictory findings. Second, it tests the Congruency Effects Theory in the intersection between environmental claims' studies and food products' studies, which the literature review clearly indicated the need for more research. Finally, this present study also meets the need for more investigation on how environmental claims influence the emotional and cognitive attitudes of consumers with distinct levels of environmental values.

To accomplish these objectives, a 2 (product category: utilitarian and hedonic) x 3 (environmental claim: utilitarian, hedonic and not present) factorial design was constructed based on findings from pre-tests that confirmed the appropriate levels of manipulations, for both the product category as well as the environmental claims. Next, a general sample from the US population (n = 566) was randomly assigned to one of the six possible treatments in order to explore differences in their attitudes and behavioral intention (WTP and PI).

5.2 Key Findings

Descriptive analyses of the sample indicated that almost 70% of participants never or just few times shop for foods with environmental labels, despite this being a sample with a non-negligible level of environmental values (NEP = 3.85). The sample also had a mean income (about $48,000) lower than the average US population

($71,000), which possibly accounts for constraints in their purchases of sustainable foods, usually sold at higher prices.

Effects of environmental claims were found not to be moderated by food type, since no interaction effects between the labels and the foods were noticed; this was the main hypothesis of this present study. As expected, however, in regards to main effects, the insertion of the emotional label successfully yielded to stronger overall attitudes, when compared to foods with no labels (the information label did not lead to stronger overall attitudes as compared to foods without labels, but there was a positive tendency, for both products). Furthermore, while exploring the distinct dimensions of this overall attitude, no main effect of labels was noticed for the cognitive attitude. For the affective attitude, the label significantly enhanced affective evaluations but only for the utilitarian food, with the emotional label again performing significantly better (and again with only a positive tendency for the informational label to perform better than the control condition, for both products). It is clear that, although there was a positive tendency for both labels to enhance consumers' attitudes, the emotional label was the one that produced most significant effects. Moreover, as expected, for the utilitarian food, the emotional label enhanced the affective attitude.

In regards to main effects of products, for the overall attitude, the hedonic food performed better (yielded to stronger evaluations) than the utilitarian food. For the cognitive attitude, the utilitarian food performed better than the hedonic food, and in the case of the affective attitude, the hedonic food performed better - an expected finding since the purpose of the pre-test was to precisely select products opposite in their hedonic and utilitarian dimensions.

For consumers' behavioral intention, main effects of products also indicated that the hedonic food consistently yielded to stronger PI and higher WTP. The effects of the labels, however, were not significant across most analyses, although they did have a tendency to positively influence these variables. These findings indicate that the effects of the hedonic food on attitudes were consistently translated into stronger behavioral intentions toward the product, but the same did not happen for the labels' effects – possibly, due to differences in effectiveness among the labels (the emotional performing consistently better) and also because the labels themselves varied on their influences across attitudes and products (mainly influencing the affective attitude of the utilitarian food).

Overall, the analyses performed with the purpose of exploring potential differences across consumers with distinct levels of environmental values did not hold significant. More specifically, interaction effects between the labels and the level of environmental values did not hold significant for the dependent variables.

5.3 Implications

5.3.1 Theoretical

The fact that the mere presence of environmental labels tend to positively influence consumers' attitudes is not a new finding, and is well established in the scientific literature (D'Souza & Taghian, 2005; Hartmann, Apaolaza-Ibáñez, & Sainz, 2005; Hartmann & Apaolaza-Ibáñez, 2008; Kong & Zhang, 2012; Rokka & Uusitalo, 2008; Steinhart et al., 2013). What is interesting, however, is that environmental claims with emotional appeals consistently yielded superior effects on attitudes, especially for utilitarian foods. To this extent, this present research adds findings to the groups of studies that tested the Congruency Theory but yielded to mixed effects. For example,

Geuens et al. (2011) and Steinhart et al. (2013) found that different types of claims had positive influences on attitudes for both types of products, as well as that emotional appeals enhanced more attitudes, irrespective of the product being hedonic or utilitarian.

Another finding from this present study is that only the affective dimension of the overall attitude was positively influenced by the environmental claims. And this finding is, actually, in accordance with other previous studies suggesting that cognition-based attitudes are less susceptible to changes than affective-based attitudes, because of their different structures and/or the attitude object (Drolet & Aaker, 2002; Dubé & Cantin, 2000; Edwards, 1990), as already detailed in the literature review.

Indeed, for the affective attitude, emotional labels performed significantly better, especially in the case of the utilitarian food (and for the hedonic food there was a positive tendency). Geuens et al. (2011) suggested that emotional ad appeals might be more effective for some products than others and, therefore, it is expected that emotional appeals can also enhance perceptions for utilitarian products. The basic idea that products cater to consumers' different purposes is reflected in advertising practices in which emotional appeals are intended to enhance affective gratification and, thus, affective attitude (Batra & Ahtola, 1991), even for products which the primary reason for shopping is not emotional, as in the case of a plain yogurt.

Within this logic, the fact that the informational label used in this study was not capable of significantly enhancing utilitarian attitudes might be attributed to the fact that they were never seen before by participants. Frequently, consumers find product labels difficult to understand (D'Souza et al., 2006). Therefore, consumers were devoid of more detailed information that could considerably enhance functional attributes of the

foods, even though this was not reflected in distrust from consumers. Additionally, a food label was used, which did not allow providing more information to consumers because of a space constraint. This could be aggravated by the fact that the majority of the sample does not prioritize the consumption of sustainable foods in their day-by-day lives and, thus, the labels had limited utility for them while accessing the functionally of the product.

Additionally, the analyses performed with the purpose of exploring potential differences in results across consumers with distinct levels of environmental values did not hold significant, which is an interesting finding since values are known to be important in shaping consumers attitudes (Honkanen & Verplanken, 2004).

In regards to consumers' behavioral intention, that the hedonic food consistently yielded to stronger PI and higher WTP can be attributed to the fact that eating has a strong emotional meaning. Americans tend to focus on the eating experience rather than in its health effects (Rozin, 2005) and, therefore, it is not surprising that consumers would have stronger intentions toward foods that fulfill these affective needs.

On the other hand, discrepancies across consumers' attitudes toward sustainable products and their behavioral intention have been well documented in the literature (De Pelsmacker et al., 2005; Vermeir & Verbeke, 2006; Wandel & Bugge, 1997) and could explain the absence of labels' effects on behavioral intention despite their positive influence in the overall attitude. Few products are purchased based solely with the purpose of protecting the environment and, therefore, consumers' purchases are guided for an array of reasons (Thøgersen, 2000), such as quality (Loureiro, 2003), involvement, information, and knowledge (Vermeir & Verbeke, 2006), income, etc. For instance, if consumers did not perceive the products in this research as superior in

quality, the environmentally friendly labels would not be enough for generating stronger intentions alone, especially for WTP.

5.3.2 Practical

The results of this research have useful implications for practitioners. First, it calls attention to the fact that emotional labels consistently showed superior performances across most analyses. Even when the emotional labels' influences were not significant, there was a positive tendency for its superior capacity of enhancing attitudes and behavioral intention when compared to the informational label and the control condition.

The use of emotional labels might be especially useful when applied to utilitarian products with the objective of increasing emotional responses from consumers, enhancing the levels of affective attitudes for utilitarian foods can boost overall attitudes and, possibly, behavioral intention. This can be especially useful while targeting American consumers, which tend to focus on the eating experience rather than in its health effects (Rozin, 2005).

Hartmann and Apaolaza-Ibáñez (2008) emphasized that sustainable claims are capable of evoking emotional feelings and enhancing consumers' attitudes if adequate manipulations are put into practice. This present research indicated the challenges of arousing emotions at the necessary level of changing consumer intentions using only a small space (i.e., food label) on the food packages. Therefore, supplementing consumers with other advertising and branding mechanisms besides food labels becomes essential to effectively change consumers' attitudes. Bridging the gap between what consumers think or feel (attitudes) and how they actually behave might be in the capacity to change attitudes so effectively that consumers would be willing to buy a certain product, or even to pay an extra price for it.

For sustainable labels with informational appeals, the lack of significant outcomes from this label calls attention for the need of a more parsimonious use of them by the food industry. If one aims to foster consumption of sustainable products, then the use of labels with emotional appeal could lead to more efficient results than informational labels.

Naturally, this does not mean companies should apply emotional labels indistinctly across their products since studies have been suggesting a 'green fatigue' from consumers (Neff, 2010).

5.4 Limitations

This research presented several limitations that could account for the lack of significant outcomes, especially in regards to behavioral intention. First, the labels manipulations were not as satisfactory as intended. As previously detailed in the results of the pre-test, for the emotional label there was no significant difference between the cognitive and affective attitudes (although it did evoke more feelings/emotions from participants when compared to the information label). Ideally, the affective dimensions of attitude would be much higher than the cognitive dimension, which would have allowed increasing consumers' emotional responses at a certain point that they would have significant stronger intentions (Hartmann & Apaolaza-Ibáñez, 2008). The limited space to convey useful information in the informational label could also have limited its capacity to increase cognitive attitudes more effectively. Many studies manipulating the levels of cognitive and affective attitudes, ask participants to read long and detailed passages about the products. The present research aimed to replicate a more natural setting, applying only a label to the products being evaluated.

Second, although a non-student sample population was used to allow more generalizations, the demographic characteristics of the participants revealed it not to be representative of the US population – among others, their annual income was lower than the average, which might have translated into the limited impact of the labels in their behavioral intentions, despite them showing overall positive attitudes.

Third, although the labels tended to influence positively the WTP of participants, in general, they assigned values below the reference price that was given to them, including in the control condition. Even when the labels tended to exert positive influence in the WTP, many times they were still below the reference price. This could indicate that the products used in this research were not appealing to consumers as intended.

Fourth, there was a significant difference between the hedonic and the utilitarian food in terms of their perceived healthiness. Since these products were included as independent variables in the statistical analyses, it was not possible to capture if the observed outcomes were due to the differences in the nature of the food products (hedonic or utilitarian) or because of the differences in their perceived healthiness.

Finally, additional indicators of environmental values could have been used to capture their influences on attitudes and behavioral intentions, such as recycling practices. Weigel and Newman (1976) found behavioral measures to exhibit stronger capacity in predicting actions. Ultimately, the use of multiple indicators could yield to differences in outcomes among consumers with distinct levels of environmental values – a fact that was expected (based on the scientific literature) but not observed in this present study.

5.5 Recommendation

5.5.1 For Future Research

The present research joins previous advocates of the need for more studies about the effectiveness of different types of environmental appeals (D'Souza & Taghian, 2005; Peattie, 2010; Schuhwerk & Lefkoff-Hagius, 1995). Contradictory findings across studies testing the Congruency Theory also call attention for the need of more research testing this theory. In the intersection of environmental advertising and food research, the present study did not find evidence to support this theory, but its results suggested the existence of mixed effects (emotional claims performing better and with effects noticed mainly for utilitarian foods).

Several authors stressed that investigating cognitive and emotional responses are essential for new insights on influencing consumer behavior (D'Souza & Taghian, 2005; Peattie, 2010). This research suggests that sustainable labels with emotional appeals persuade consumers through changes in their affective attitude, but mainly for utilitarian foods whose affective evaluations naturally tend to have less weight on overall attitudes when compared to hedonic foods. This understanding was possible only when considering attitude as a multidimensional construct as originally conceived, but very differently from most research being conducted in this area.

Clearly, more research is also needed to understand the mechanisms through which sustainable claims persuade consumers. The findings that significant outcomes were noticed mainly through changes in emotional responses can also shed light in discrepancies frequently observed between attitudes and behavioral intention (De Pelsmacker et al., 2005; Vermeir & Verbeke, 2006; Wandel & Bugge, 1997), indicating that besides external factors (such as, income), emotional responses might also play an important role.

No research was found about how emotional and informational green claims may influence, in distinct manners, the hedonic and utilitarian dimensions of consumers' attitude toward food among people with different levels of environmental values. Furthermore, the lack of different outcomes among consumers with different levels of environmental values also calls attention for more investigation.

Overall, more research is needed to understand effective combinations of environmental labels and food products with the objective of enhancing consumers' experiences. Since no single study accounts for all possible mediating factors, future research should also explore additional variable, such as perceived quality, involvement, knowledge, perceived environmental impact, among others.

5.5.2 For Practitioners

Findings from this present study suggest that sustainable products would benefit from green claims with emotional appeal. Emotional labels not only yielded to better results when compared to food without labels, but also showed to perform better than informational labels.

The augment of emotional appeal in sustainable products can be beneficial mainly for utilitarian products, since consumers typically have lower affective attitude toward them when compared to hedonic foods.

One of the main challenges, however, lies on the ability to manipulate these emotional appeals in such restricted food package spaces and labels. The same applies to informational labels, especially in an era where consumers are overloaded with green claims.

In sum, green claims can foster better perceptions and consumption of sustainable products, but only with adequate manipulations of emotional and

informational appeals. And, even though these claims might not be a standalone to increase behavioral intention, they can help companies in increasing positive perceptions about sustainable brands.

5.6 Conclusion

This research explored, from a consumer perspective, the ideal match between environmental claims across certain food products. Relying on the theoretical framework of congruency effects the study investigated effects on consumers' attitudes and behavioral intention under different combinations of hedonic/utilitarian foods and emotional/informational 'environmentally friendly' claims.

The results suggest that there is not an ideal match between sustainable labels and foods, although emotional labels performed consistently better - not only when compared to foods with no labels, but also as compared to informational labels. Significant changes on attitudes were noticed especially for the utilitarian food and, more specifically, on consumers' affective attitude toward these type of food. Unexpectedly, however, there were not observed significant differences in outcomes among consumers with distinct levels of environmental values. These findings, along with a comprehensive literature review, call attention for the need of more research in the area in order to fully understand the persuasion mechanisms of environmental advertising. Nonetheless, emotional labels applied parsimoniously to foods products might represent an opportunity to foster sustainable consumption, especially for utilitarian foods.

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TABLES AND FIGURES

Table 1. Main variables and findings of previous research on matching effects.

Authors	Independent Variables	Dependent Variables	Product/ Sample/Message	Main Findings
Millar and Millar (1990, Study 1)	- affective and rational products - affective and cognitive persuasion	- product evaluation/ preference - message agreement (text)	Common beverages /students/negative messages	Mismatch: - affect-based (cognitive) attitudes changed more for rational (emotional) messages - rational (emotional) messages produced more agreement for affect-based (cognitive) attitudes
Edwards (1990, Study 2)	- affective and rational products (induced formation of attitude) - affective and cognitive persuasion	- product evaluation/ preference (degree of liking) - confidence about this judgment	Fictitious beverage/students/ /negative messages	Match: - affect-based attitudes changed more for emotional messages. Cognitive-based attitudes showed equal change for both types of messages - affect-based attitudes were held with greater conviction than cognition-based attitudes
Edwards and Von Hippel (1995, Study 1)	- induced affective and cognitive attitudes toward the female - affective and cognitive persuasion about a person	- confidence in liking the female job applicant - confidence in the overall impression on the female	People/male students/ negative impressions about females applying for a fictitious job	Match: - affect-based attitudes changed more by affective appeals. Cognitive-based attitudes showed equal change for both types of messages - affect-based attitudes was expressed with greater confidence than cognition-based attitudes
Fabrigar and Petty (1999, Study 1)	- affective and rational products (induced formation of attitude) - affective and cognitive persuasion	- product evaluation/ preference (degree of liking)	Fictitious beverage/students/ negative messages	Match: - affect-based attitudes changed more by emotional messages. Cognitive-based attitudes showed equal change for both types of messages
Dubé and Cantin (2000)	- affect-based and cogni-tion-based attitudes - emotional and informative appeals	- food liking (affective indicator) - food consumption intent (cognitive indicator)	Milk/students /positive (text)	Match: - for affect-based attitudes, food liking (affect-based) was more sensitive to an emotional appeal - consumption change intent (cognition-based) was more sensitive to informational appeals

Table 1. (Cont.)

Authors	Independent Variables	Dependent Variables	Product/ Sample/Message	Main Findings
Drolet and Aaker (2002)	- unfavorable affect-based and cognition-based attitudes (well-established and non- existent) - favorable affective and cognitive appeals	- brand attitudes	Shampoo/students/ positive messages	Mixed: - well-established affective attitudes greater persuasion effects occur for cognitive appeals - for no prior affective attitudes greater persuasion effects occur for affective appeals. - for cognitive attitudes there was no difference in persuasion effects between cognitive and affective appeals
Hartmann and Apaolaza-Ibáñez (2008)	- perceived environmental utilitarian benefits - emotional experiences (feelings of well-being)	- attitude toward the brand (Ab)	Green energy ads/students/positive messages and images	- positive influences on Ab - effects moderated by environmental attitudes - virtual nature (emotional) experiences had the most significant influence
Kim, Cheong and Zheng (2009)	- hedonic and functional foods - taste and nutritional claims	- attitude toward the brand (Ab) - purchase intention	Wide variety of reals food ads/ students/ positive appeals	Mixed: - content analysis of real ads revealed the predominant use of taste claim-hedonic food and nutrition claim-functional food combinations - quasi-experiment showed that taste claim-functional food and nutrition claim-hedonic food combinations were more effective
Geuens, De Pelsmacker and Faseur (2011, Study 1 and 3)	- hedonic and utilitarian products - emotional and non-emotional appeal	- attitude toward the brand (Ab) - attitude toward the ad (Ad)	Snacks, hand tissues, vacations, and insurances, TV commercials /students/ positive appeal (image)	Mixed: - emotional appeals enhance more Ab and Ad, irrespective of the product category - the product under study also mediates emotional ads effectiveness
Choi, Paek and King (2012)	- healthy and unhealthy foods - nutrient and taste claims	- claim believability - attitude toward the ad (Ad) - attitude toward the brand (Ab) - purchase intention	Yogurt/ice cream and granola bar/chocolate chip cookies /students/positive appeal (text and image)	Match: - nutrient claims-healthy foods and taste claims-unhealthy foods lead to significantly higher claim believability, Ad and Ab

Table 1. (Cont.)

Authors	Independent Variables	Dependent Variables	Product/ Sample/Message	Main Findings
Kong and Zhang (2012)	- high and low environmental impact products - green appeals and non-green appeals	- attitude toward the ad (Ad) - purchase intention (PI)	Batteries and cereals/students /positive appeals	- green appeals for harmful products had significant impact in enhancing Ad and PI - for products less harmful, there was no significant difference in Ad and PI between green and non-green appeals
Steinhart, Ayalon and Puterman (2013, Study 1)	- utilitarian and hedonic products - presence and absence of environmental claims	- product evaluation - perceived role of the claim - perceived product functionality - self-perceived environmentalism	Toilet paper and fancy napkins/general population/positive text messages	- claims had positive effects for both products - claims enhanced the functionality of utilitarian product - claims enhanced the self-perceived environmentalism for the hedonic product - claims were perceived as utilitarian features of the products
Steinhart, Ayalon and Puterman (2013, Study 2)	- utilitarian and hedonic products - environmental claims of global benefits and personal benefits	- product evaluations - perceived role of the claims	Toilet paper and fancy napkins/general population/positive text message	Mixed: - global benefits-utilitarian products and personal benefits-hedonic products were the combinations most effective in enhancing attitudes - both claims were perceived as utilitarian features of the products

Table 2. Independent sample t-tests for hedonic and utilitarian foods.

	Descriptive Statistics			t-test for Equality of Means		
	N	Mean	SD	t	df	Sig. (2-tailed)
Attitudes						
Yogurt_UTIL	16	3.75	1.18	3.07	42	.00
Yogurt_HED	28	2.39	1.52			
Coffee_UTIL	20	2.00	1.34	-4.76	43	.00
Coffee_HED	25	3.88	1.30			
Yogurt_UTIL	16	3.75	1.18	4.10	34	.00
Coffee_UTIL	20	2.00	1.34			
Yogurt_HED	28	2.39	1.52	-3.80	51	.00
Coffee_HED	25	3.88	1.30			
Involvement						
Yogurt	19	3.58	1.35	-.01	29	.99
Coffee	12	3.58	1.24			
Likeability						
Yogurt	25	3.44	1.29	-.14	43	.89
Coffee	20	3.50	1.50			
Healthiness						
Yogurt	28	4.54	.51	17.34	55	.00
Coffee	29	1.83	.66			

Table 3. Cronbach's alpha and statistics of the scales used to evaluate the labels.

	N of valid cases	Cronbach's Alpha	Scale Statistics		
			Mean	SD	N of Items
Informational Label					
Cognitive Attitude	28	.84	3.44	.82	5
Affective Attitude	27	.88	2.32	.82	5
Truthfulness	28	.81	3.27	.82	2
Emotional Label					
Cognitive Attitude	26	.90	3.36	.80	5
Affective Attitude	27	.88	2.97	.83	5
Truthfulness	27	.68	3.43	.78	2

Table 4. Paired t-tests for the informational and emotional labels.

	Descriptive Statistics			Paired Samples t-test		
	N	Mean	SD	t	df	Sig. (2-tailed)
Informational Label						
Cognitive Attitude	27	3.40	.81	8.91	26	.00
Affective Attitude	27	2.32	.82			
Emotional Label						
Cognitive Attitude	26	3.36	.80	1.79	25	.08
Affective Attitude	26	3.05	.74			

Table 5. Independent t-tests for the informational and emotional labels.

	Descriptive Statistics			t-test for Equality of Means		
	N	Mean	SD	t	df	Sig. (2-tailed)
Cognitive Attitude						
Informational Label	28	3.44	0.82	.37	52	.72
Emotional Label	26	3.36	0.80			
Affective Attitude						
Informational Label	27	2.32	0.82	-2.91	52	.00
Emotional Label	27	2.97	0.83			
Truthfulness						
Informational Label	28	3.27	0.82	-.73	53	.47
Emotional Label	27	3.43	0.78			

Table 6. Cronbach alpha for the attitude scales in the pilot test.

	Attitude Scales*			
	Cognitive	Affective	Overall	Truthfulness
Yogurt & Informational Label	.94	.96	.95	.83
Yogurt & Emotional Label	.72	.94	.77	.76
Coffee & Informational Label	.74	.90	.94	.76
Coffee & Emotional Label	.82	.74	.72	.01
Yogurt (Control)	.82	.92	.83	.76
Coffee (Control)	.92	.86	.92	.60
All Six Treatments Combined	.86	.94	.87	.68

*Cognitive and affective scales were composed by 5 items, 'overall scale' was composed by 3 items and 'truthfulness scale' by 2 items.

Table 7. Attitudes' means and standard deviations.

	Attitude	Informational Label	Emotional Label	No Label
Yogurt	**Cognitive**	*n*=86, *M*=3.49, *SD*=.82	*n*=95, *M*=3.72, *SD*=.75	*n*=97, *M*=3.54, *SD*=.83
	Affective	*n*=86, *M*=2.55, *SD*=.89	*n*=95, *M*=2.92, *SD*=1.08	*n*=96, *M*=2.33, *SD*=1.0
	Overall	*n*=86, *M*=3.51, *SD*=1.0	*n*=95, *M*=3.74, *SD*=1.03	*n*=97, *M*=3.30, *SD*=1.07
	Truthful	*n*=86, *M*=3.62, *SD*=.77	*n*=95, *M*=3.77, *SD*=.78	*n*=97, *M*=3.79, *SD*=.79
Coffee	**Cognitive**	*n*= 96, *M*=2.91, *SD*=.71	*n*=98, *M*=2.93, *SD*=.74	*n*=91, *M*=2.82, *SD*=.70
	Affective	*n*=96, *M*=3.89, *SD*=.66	*n*=97, *M*=3.96, *SD*=.78	*n*=93, *M*=3.85, *SD*=.73
	Overall	*n*=96, *M*=4.04, *SD*=.83	*n*=98, *M*=4.10, *SD*=.76	*n*=93, *M*=3.89, *SD*=.81
	Truthful	*n*=96, *M*=3.15, *SD*=.66	*n*=98, *M*=3.32, *SD*=.64	*n*=93, *M*=3.29, *SD*=.68

Table 8. Cronbach alpha for the attitude scales in the final data collection.

	Attitude Scales			
	Cognitive	**Affective**	**Overall**	**Truthfulness**
Yogurt & Informational Label	.87	.88	.88	.60
Yogurt & Emotional Label	.85	.90	.88	.68
Coffee & Informational Label	.76	.77	.83	.58
Coffee & Emotional Label	.82	.89	.81	.45
Yogurt (Control)	.86	.92	.90	.68
Coffee (Control)	.73	.84	.74	.60
All Six Treatments Combined	.85	.92	.84	.65

Table 9. Attitudes' descriptive statistics.

	Attitude	Informational Label	Emotional Label	No Label
Yogurt	**Cognitive**	*n*=86, *M*=3.49, *SD*=.82	*n*=95, *M*=3.72, *SD*=.75	*n*=97, *M*=3.54, *SD*=.83
	Affective	*n*=86, *M*=2.55, *SD*=.89	*n*=95, *M*=2.92, *SD*=1.08	*n*=96, *M*=2.33, *SD*=1.0
	Overall	*n*=86, *M*=3.51, *SD*=1.0	*n*=95, *M*=3.74, *SD*=1.03	*n*=97, *M*=3.30, *SD*=1.07
	Truthful	*n*=86, *M*=3.62, *SD*=.77	*n*=95, *M*=3.77, *SD*=.78	*n*=97, *M*=3.79, *SD*=.79
Coffee	**Cognitive**	*n*= 96, *M*=2.91, *SD*=.71	*n*=98, *M*=2.93, *SD*=.74	*n*=91, *M*=2.82, *SD*=.70
	Affective	*n*=96, *M*=3.89, *SD*=.66	*n*=97, *M*=3.96, *SD*=.78	*n*=93, *M*=3.85, *SD*=.73
	Overall	*n*=96, *M*=4.04, *SD*=.83	*n*=98, *M*=4.10, *SD*=.76	*n*=93, *M*=3.89, *SD*=.81
	Truthful	*n*=96, *M*=3.15, *SD*=.66	*n*=98, *M*=3.32, *SD*=.64	*n*=93, *M*=3.29, *SD*=.68

Table 10. WTP and PI descriptive statistics.

	Intent	Informational Label	Emotional Label	No Label
Yogurt	**PI**	*n*=87, *M*=2.75, *SD*=1.23	*n*=95, *M*=2.91, *SD*=1.40	*n*=97, *M*=2.69, *SD*=1.35
	WTP	*n*=87, *M*=1.93, *SD*=.84	*n*=95, *M*=1.99, *SD*=.99	*n*=97, *M*=1.40, *SD*=.75
Coffee	**PI**	*n*=96, *M*=3.23, *SD*=1.12	*n*=98, *M*=3.37, *SD*=1.22	*n*=93, *M*=3.31, *SD*=1.22
	WTP	*n*=95, *M*=3.63, *SD*=.96	*n*=97, *M*=3.61, *SD*=.83	*n*=90, *M*=3.16, *SD*=1.05

Table 11. Pearson correlations between independent and dependent variables.

		Income	Green Foods[1]	NEP	Overall Attitude	PI	WTP
Income	**Correlation**	1	.09*	-.07	.06	.12**	.02
	Sig. (2-tailed)		.04	.13	.22	.01	.73
	N	509	509	509	508	509	507
Green Foods[1]	**Correlation**	.09*	1	.21**	.16**	.22**	.15**
	Sig. (2-tailed)	.04		.00	.00	.00	.00
	N	509	566	566	565	566	561
NEP	**Correlation**	-.07	.21**	1	.07	.05	.10*
	Sig. (2-tailed)	.13	.00		.12	.27	.03
	N	509	566	566	565	566	561

[1]Question in which participants were asked how frequently they bought foods with environmental labels.
*Correlation is significant at the 0.05 level (2-tailed) / **Correlation is significant at the 0.01 level (2-tailed).

Table 12. Regression estimates for overall attitude and behavioral intention.

Variable/Estimate	Overall Attitude	Purchase Intention	Willingness to Pay
Intercept	3.71*	3.80*	-18.39
	(0.47)	(0.65)	(18.92)
Product (Food)	-1.48*	-2.70*	-24.80
	(0.62)	(0.85)	(24.45)
Informational Label (IL)	1.08	-0.80	31.44
	(0.73)	(1.00)	(28.96)
Emotional Label (EL)	0.89	-0.05	14.12
	(0.63)	(0.86)	(25.29)
Environmental Values (NEP)	0.04	-0.14	2.28
	(0.12)	(0.17)	(4.96)
Food*IL	-0.36	1.83	-38.34
	(1.00)	(1.37)	(39.35)
Food*EL	0.07	1.13	10.37
	(0.50)	(0.68)	(19.70)
Food*NEP	0.24	0.55*	1.05
	(0.16)	(0.22)	(6.34)
IL*NEP	-0.23	0.20	-4.64
	(0.18)	(0.25)	(7.33)
EL*NEP	-0.17	0.04	-0.40
	(0.16)	(0.22)	(6.55)
Food*IL*NEP	0.10	-0.46	13.41
	(0.25)	(0.35)	(10.00)
Food*EL*NEP	0.01	-0.07	0.46
	(0.03)	(0.04)	(1.20)
R-Squared	0.11	0.06	0.11

Note: * represents statistical significance at 5%

Standard errors are in parentheses

Table 13. Regression estimates for cognitive and affective attitude.

Variable/Estimate	Cognitive Attitude	Affective Attitude
Intercept	3.41*	4.02*
	(0.39)	(0.45)
Product (Food)	-0.89	-2.31*
	(0.51)	(0.59)
Informational Label (IL)	0.02	0.16
	(0.60)	(0.69)
Emotional Label (EL)	0.01	0.81
	(0.52)	(0.60)
Environmental Values (NEP)	-0.16	-0.05
	(0.10)	(0.12)
Food*IL	0.56	0.38
	(0.82)	(0.95)
Food*EL	0.34	0.61
	(0.41)	(0.47)
Food*NEP	0.43*	0.21
	(0.13)	(0.15)
IL*NEP	0.03	-0.02
	(0.15)	(0.18)
EL*NEP	0.03	-0.18
	(0.13)	(0.15)
Food*IL*NEP	-0.19	-0.06
	(0.21)	(0.24)
Food*EL*NEP	-0.02	-0.01
	(0.02)	(0.03)
R-Squared	0.21	0.39

Note: * represents statistical significance at 5%

Standard errors are in parentheses

Figure 1. Scatterplot of the food products.

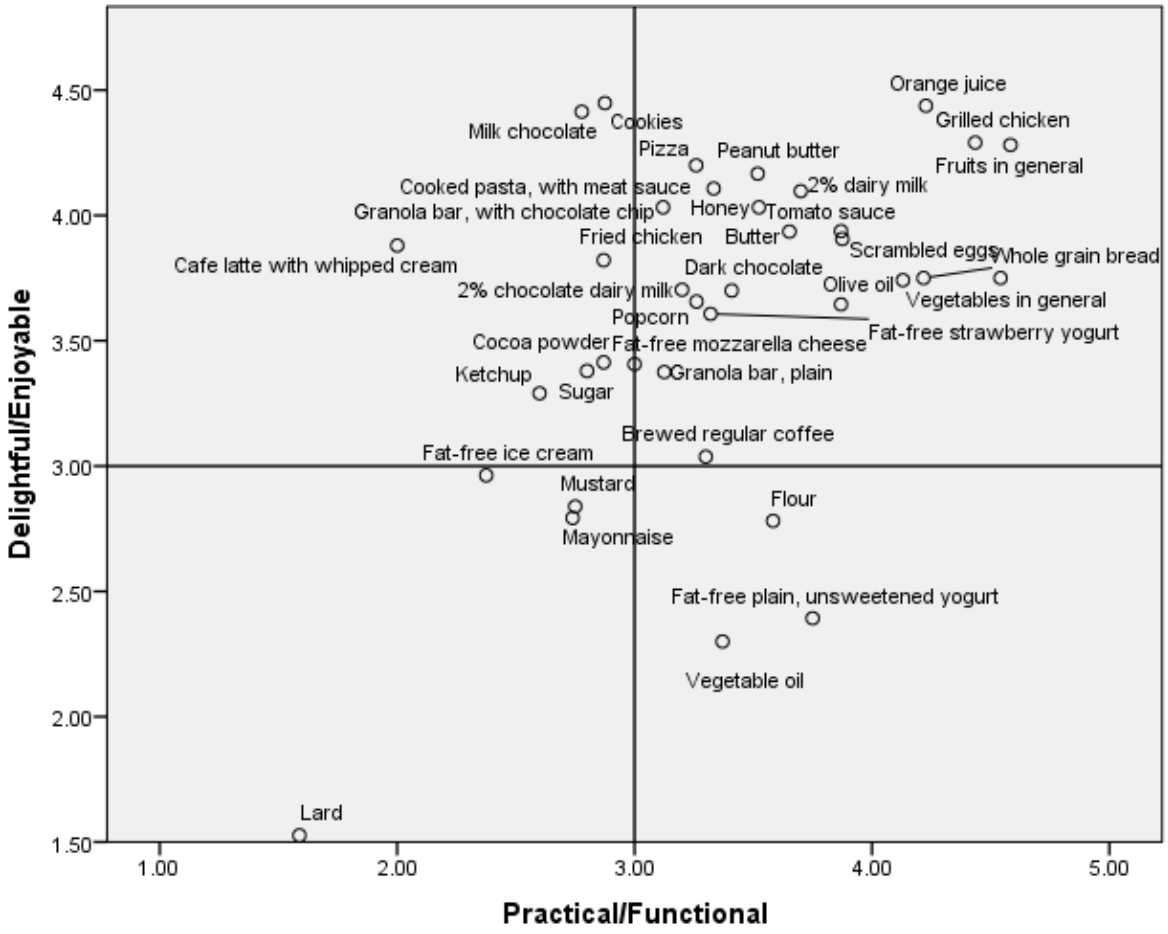

Figure 2. Final instrument images.



Yogurt & Informational Label



Yogurt & Emotional Label


Yogurt (Control)



Coffee & Informational Label



Coffee & Emotional Label


Coffee (Control)