

# How to Promote Eco-Apparel? Effects of Eco-Labels and Message Framing

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## Abstract

The study investigates the potential effects of eco-labels and advertisement message framings for promoting consumer attitude on eco-apparel consumption. Furthermore, this paper examines how consumers' attitudes towards the brand and advertisement affect consumers' evaluation of brand equity in sustainable brands. Using non-probability sampling with college students and Amazon Mturkers, the authors developed the proposed hypotheses with 2 (Eco-label: Absence vs. Presence) x 2 (Framed Messages: Positive vs. Negative) between-subject design on consumers' attitudes toward the brand, advertisement, and evaluation of brand equity. To test hypotheses, multivariate analysis of variance (MANOVA) and a series of simple regressions were performed. Results revealed that the eco-label did not significantly increase consumers' attitude toward the eco-apparel brand, leading to no interaction effect between eco-label and message framing on consumer attitude. However, message framing was effectively applied as positive messages were significantly associated with consumers' attitudes toward the brand, the advertisement, and consumers' evaluation of brand equity in the context of eco-apparel brands. This study simultaneously examines the eco-label and message framings on consumers' attitudes toward the advertisements, consumers' attitudes toward the brand, and their evaluations of brand equity in the eco-apparel context.

**Keywords:** eco-apparel, eco-label, message framing, signaling theory

## 1. Introduction

As sustainability initiatives gain popularity in businesses, the demand for environmental consideration and consumers' interest in shopping for eco-apparel has also increased (Lee, 2011). Eco-apparel is defined as apparel manufactured with recycled materials or natural fibers and dyed with natural resources such as minerals and plants (Hong & Kang, 2019). Today's consumers are willing to pay more for eco-apparel products (Ryding, Caratù, Jiang, & Henningers, 2016). 70 percent of US consumers prefer businesses with companies driven by an environmentally friendly business strategy (Rothenberg & Matthews, 2017). Although most consumers tend to express their concerns about environmental issues or purchasing eco-apparel, they are still less knowledgeable about sustainability, despite their educational attainment levels (Connell, 2010; Kim & Darmhorst, 1998). To reduce the knowledge gap, researchers (e.g., Chang, Zhang, & Xie, 2015; Tsai, 2007; Yan, Dillard, & Shen, 2012) suggest providing credible signals to differentiate among brands/companies to raise consumer confidence in sustainable consumption. Previous studies report that consumers feel confident when they see the seal of approval logo on the advertisement (Parkinson, 1975; Taufique, Vocino, & Polonsky, 2017). In addition, other researchers argue that a message-framing technique is an effective strategy to change consumer attitudes and subsequent behaviors (Chang et al., 2015; Tsai, 2007; Yan et al., 2012). Previous studies suggest that using appropriate framed messages can enhance persuasiveness as the message frame strategy is driven by the hedonic principle of motivation and cognitive bias (Tsai, 2007; Yan et al., 2012). While message framing can be a useful tool to attract consumers and reduce the knowledge gap between consumers and eco-apparel, there have been few studies on message framing in the context of eco-apparel. Besides, although eco-labels and framed messages can impact on brand equity, to date, limited studies have examined the effects of eco-labels and framing message strategies on consumers' responses. Therefore, this study investigates the interaction effect of eco-labels and framing messages in the context of environmentally friendly apparel. Specifically, the objective of the study is

three-fold:

- 1) To investigate the main effects of the eco-label (absence versus presence of eco-label) and the type of message-framing (positively versus negatively framed) on consumer attitudes toward the advertisements, consumer attitudes toward the brand, and consumer evaluation of the brand equity,
- 2) To explore the two-way interaction effect of the eco-label (absence versus presence of eco-label) and the type of message-framing (positively versus negatively framed) on consumer attitudes toward the advertisements, consumer attitudes toward the brand, and consumer evaluation of the brand equity, and
- 3) To examine the relationships between consumer attitudes toward the advertisement, consumer attitudes toward the brand, and consumer evaluation of the brand equity.

In theoretical contributions, this study enriches the body of apparel branding, advertising, and environmental concerns literature by addressing the gaps in knowledge. The current study addresses this gap by simultaneously examining the eco-label and the effects of message-framing on consumers' attitudes toward the advertisements, consumers' attitudes toward the brand, and their evaluations of brand equity. For practical contributions, as the study expects to reveal some significant factors in influencing eco-apparel brand equity, such results can provide a guideline for brand managers to consider which dimensions of brand equity they should invest in attracting consumers.

## **2. Theoretical Background and Hypotheses**

### *2.1 Signaling Theory*

Signaling theory facilitates symbolic representation to explain the potential influence of many predictors of outcomes (Celani & Singh, 2011). Signaling theory consists of three elements: signaler, signal, and receiver. First, a signaler refers to insiders or internal persons (e.g., executives or business managers) who have information about products or organizations (Connelly, Certo, Ireland, & Reutzel, 2011). Second, a signal represents "a marketer-controlled, easy-to-acquire informational cue, extrinsic to the product itself that consumers use to form inferences about the quality or value of that product" (Bloom & Reve, 1990, p. 59). A signal can be positive or negative information, and it can be verbal or imagery. Companies decide how they facilitate signals to communicate with sellers. The last component of signaling theory is the receiver (the buyer). A receiver is defined as an outsider who lacks information about the products or services that an insider (the seller) offers in the market. In signaling theory, consumers are regarded as outsiders. Because there is information asymmetry between business managers and consumers, consumers tend to decide whether they want to purchase the product or service based on the information (Connelly et al., 2011). Therefore, delivering appropriate signals is crucial for business success as this strategic action can decrease information search costs and perceived risk for consumers while enhancing the product value.

### *2.2 Framing Effects*

Framing effects is originated in the gain-loss framing message from the prospect theory (Kahneman & Tversky, 1979). Framing effects are defined as the systematic human tendency to choose different options in terms of gains (positive) and losses (negative) frame (Gonzalez Dana, Koshino, & Just, 2005). According to the prospect theory, framing effects are generally explained in three types: risky choice, attribute framing, and goal framing (Kahneman & Tversky, 1979). Risky choice framing refers to varying outcomes of potential options with different risk levels. Attribute-framing is related to characteristics of an object which can be leveraged in the framing effects - whether the key attribute is framed—in either positive or negative valence (Levin Schneider, & Gaeth, 1998). Last, the goal-framing effect manipulates the goal of human behaviors or actions, presenting two different framing messages. Goal-framing effects apply to a situation where framed messages are presented to achieve a goal. While positively framed messages are related to potential future benefits, negatively framed messages are related to the behavioral consequences of the goal-framing effect (Kuvaas & Selart, 2004). Newman et al. (2012) explain that advertisement and health communication frequently use goal framing effects.

### *2.3 Consumers' Attitudes Toward the Advertisement*

Mackenzie and Lutz (1989) define consumer attitudes toward the advertisement as a favorable or unfavorable response to a particular advertising stimulus. Depending on how the advertising frames the messages, it can influence consumer attitudes toward the advertisement. Some advertisements may arouse joy, happiness, or nostalgia, and others evoke emotions such as sorrow, sadness, or despair (Shimp, 1981). For example, Sallam and Wahid (2012) report that consumer attitudes are affected by how messages are framed in the advertisement when consumers lack information about the content.

#### *2.4 Examining Main Effect of Eco-Label on Consumers' Attitudes Toward the Advertisement and the Brand*

Eco-labeling is an accreditation that proves a product's overall excellence from environmental harm awarded by the government or impartial third party that certifies environmental leadership criteria (Žurga & Forte, 2014). Since green consumption is established based on the credence of claim, authenticity, and credibility, signals (e.g., eco-labels) are pivotal in green consumption (Atkinson & Rosenthal, 2014). For example, Goswami (2008) reports that eco-labels are an assurance to consumers who make such purchases of green products, but they also guide consumers to make the right choices. Atkinson and Rosenthal (2014) found that attaching eco-labels to the products can generate positive attitudes toward environmentally friendly products for consumers. Furthermore, D'Souza, Taghian, Lamb and Peretiatko (2007) reported that consumers are likely to display favorable attitudes toward green products with the environmental label attached compared to green products with no credentials such as environmentally friendly labels. Therefore, it is postulated that:

H1: Consumers' attitudes toward the advertisement will be more favorable when the eco-label is present compared to the eco-label absence.

H2: Consumers' attitudes toward the brand will be more favorable when the eco-label is present compared to the eco-label absence.

#### *2.5 Examining Main Effect of Eco-Label on Brand Equity*

Brand equity is brand assets related to a brand (e.g., brand name and symbol) that can add or subtract a product/service's value provided by a company (Aaker, 1991; Chen, 2010). Reinders and Bartels (2017) argue that an effective marketing campaign can increase brand equity by enhancing the perceived value of green products; thus, consumer evaluations of brand equity can be enhanced when the eco-label is present in the green products. Larceneux, Benoit-moreau and Renaudin Valérie (2012) found that eco-labels enhance the attributes of environmentally friendly products and positively impact brand equity, such as perceived quality. Testa, Iraldo, Vaccari and Ferrari (2015) further find that a signal such as eco-labels increases consumer loyalty toward a brand because it provides assurance in product quality and trust to consumers. Thus, it is postulated that:

H3: Consumers' evaluations of brand equity as measured in terms of a) brand image, b) brand credibility, c) perceived brand quality, and d) brand loyalty will be more positive when eco-label is present as compared to the eco-label absence.

#### *2.6 Examining the Main Effect of Message Framing on Attitudes*

Several scholars (e.g., Jin, Zhang, & Chen, 2017; Yan et al., 2012) reveal that positively framed messages tend to be more persuasive when behavior is associated with low risks. However, negatively framed messages tend to be less convincing when behavior is associated with high risk. For example, in Dijkstra, Rothman and Pietersma's (2011) study on the consumption of fruits and vegetables, they find that the positively framed messages seem to reach their goal of persuading people to consume more fruits and vegetables compared to the negatively framed messages. Therefore, it is expected that:

H4: Consumers' attitudes toward the advertisement will be more favorable when environmental messages are positively framed as compared to when they are negatively framed.

H5: Consumers' attitudes toward the brand will be more favorable when environmental messages are positively framed as compared to when they are negatively framed.

#### *2.7 Examining the Main Effect of Message Framing on Brand Equity*

In advertisements, brand equity relies on the message that the advertisements contain because brand equity vary based on how the messages are constructed. For example, brand credibility can affect differently based on the messages framed differently in the advertisement (Arora, 2000). Kim and Kim (2014) report that when an advertisement includes a positively framed message with credible sources, consumers show a positive response. It implies that positive and promotional messages make consumers more loyal to the brand than competitors. Therefore, it is expected that a positively framed message interacts with high brand equity. It is postulated that:

H6: Consumers' evaluations of brand equity as measured in terms of a) brand image, b) brand credibility, c) perceived brand quality, and d) brand loyalty will be more positive when environmental messages are positively framed as compared to when they are negatively framed.

#### *2.8 Examining the Interaction Effects Between Eco-Label and Message Framing on Attitudes*

Message-framing techniques and the presence (or absence) of eco-label can impact consumers' effective responses (Dijkstra et al., 2011; Testa et al., 2015). Grewal, Gotlieb and Marmorstein (1994) report that there is a

moderating effect of message framing techniques on consumers' perception of performance risk. In addition, Rashid (2009) finds a moderating effect of eco-label, revealing an interaction effect between green product knowledge and label awareness on green purchase intention. Thus, it is theoretically hypothesized that the presence of eco-label and framing messages will affect consumers' attitudes toward the brand and the advertisements. Therefore, the study postulates that:

H7: There will be an interaction effect between the presence (absence) of the eco-label and the type of message frames on consumers' attitudes toward the advertisement.

H8: There will be an interaction effect between the presence (absence) of the eco-label and the type of message frames on consumers' attitudes toward the brand.

### 2.9 Examining the Interaction Effects Between Eco-Label and Message-Framing on Brand Equity

Eco-labels and framing messages both can also impact how consumers evaluate the brand equity (Larceneux et al., 2012). It implies while consumers evaluate the brand's product or service, consumers indirectly evaluate brand equity, including brand image, credibility, and perceived quality. Kumar, Polonsky, Dwivedi and Kar (2021) report that when highly credibility of eco-label (high vs. low credibility) moderates the effect of persuasiveness on green brand credibility, ultimately leading to a high green brand evaluation. Through literature review and hypotheses developments, it is theoretically hypothesized that the presence of eco-label and framing messages have an interaction effect on consumers' evaluations of brand equity on eco-apparel. Therefore, the study postulates that:

H9: There will be an interaction effect between the presence (absence) of the eco-label and message frames on consumer evaluations of brand equity as measured in terms of a) brand image, b) brand credibility, c) perceived brand quality and d) brand loyalty.

### 2.10 Examining the Relationships Between Attitudes and Brand Equity

Several studies found that consumer attitudes toward the brand and the advertisements are associated with brand equity such as brand image, brand credibility, brand loyalty, and brand perceived quality (Faircloth, Capella, & Alford, 2001; Hsu, 2012; Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010). For example, Faircloth et al. (2001) reported that positive consumer attitudes toward the brand enhance brand equity leading to a positive brand image. In addition, Park et al. (2010) denotes that consumer attitudes toward the brands can be important in measuring brand equity. Hsu (2012) finds that advertising can influence consumers' evaluation of brand equity on corporate social responsibility initiatives for a company. Therefore, the study postulates that:

H10: There will be a relationship between consumer attitudes toward the advertisement and consumer evaluations of brand equity as measured in terms of a) brand image, b) brand credibility, c) perceived brand quality, and d) brand loyalty.

H11: There will be a relationship between consumer attitudes toward the brand and consumer evaluations of brand equity as measured in terms of a) brand image, b) brand credibility, c) perceived brand quality, and d) brand loyalty.

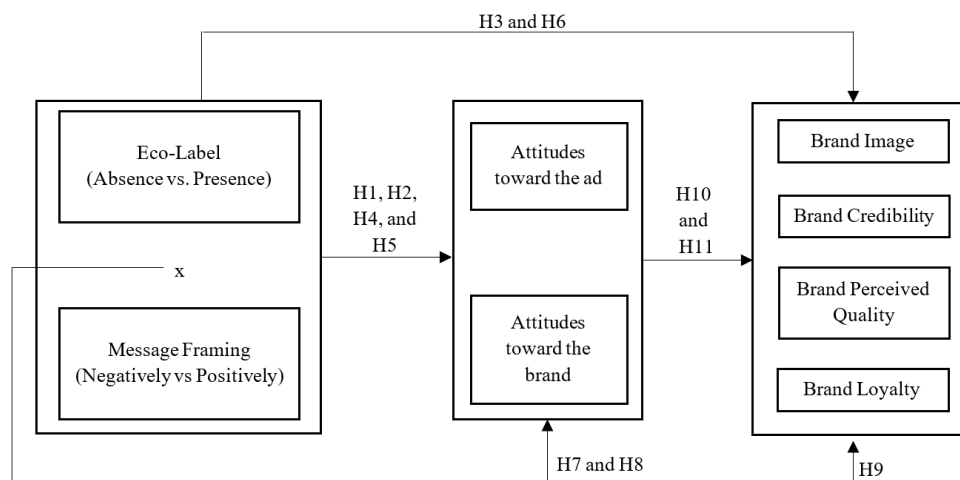


Figure 1. The proposed theoretical framework

### 3. Methodology

#### 3.1 Pre-Test 1

We performed two different pre-tests. To gather study participants, we received approval from the institutional review board (IRB) from the office of research integrity. These two pre-tests were developed in Qualtrics and distributed to undergraduate students ( $n = 57$ ) attending a southeastern university in the U.S. A total of 30 usable data were collected.

The goal of pre-test 1 was to find the most recognizable eco-label in the market. Because there are many eco-labels available, we selected three eco-labels based on countries and three global eco-labels so that participants had various options. Pre-test 1 presented six eco-labels: 1) the United State Department of Agriculture (USDA) Organic, 2) the EU Ecolabel, 3) the Good Environmental Choice from Australia (GECA), 4) the Global Organic Textile Standard (GOTS), 5) the Better Cotton Initiative (BCI), and 6) the Certified B Corporation.

In addition, participants received a questionnaire with six different eco-labels along with descriptions of each label. The participants were then directed to answer three questions: 1) “Which of the following eco-labels do you recognize most? (Choose top 3)”, 2) “Which of the following eco-labels do you know best about their meaning and purpose? (Choose top 3)”, and 3) “Which of the following eco-labels do you think should be included in the advertising for eco-apparel? (Choose top 3)”. The results of pre-test 1 revealed that the USDA organic label was revealed as rank 1, followed by the EU eco-label and the GOTS, respectively. Although USDA organic label is ranked 1, this label represents all categories of products (e.g., foods, textile, and furniture). Thus, we selected the GOTS label for the main study since GOTS is more specific to the context of apparel.

#### 3.2 Pre-Test 2

Pre-test 2 aimed at identifying whether participants received hypothetical scenarios as we intended (2 message framing x 2 an eco-label). A fictitious eco-apparel brand (SA\*LA) was developed by the researcher to eliminate a possible bias from previous brand awareness.

After viewing the framed messages, either positive or negative, the participants answered questions related to assessing positive (negative) valence and potential benefits (potential consequences) of purchasing eco-apparel. The first question asked to answer positive (negative) valence, “To what extent do you feel about this message in terms of your emotion?” This question was measured on three items using a seven-point semantic-differential scale (positive/negative, good/bad, and optimistic/pessimistic). The second question asked, “How believable is the scenario you just read that you are likely to encounter these potential consequences if you do not purchase eco-apparel products?” using a seven-point Likert scale where 1 = “Not believable” and 7 = “Believable.” The last question asked, “Given these potential consequences, to what extent are you worried if you do not purchase eco-apparel products?” using a seven-point Likert type scale where 1 = “Not worried at all” and 7 = “Extremely worried.”

Results showed that both framed messages were supposed to elicit expected valences. The positively framed messages (PFM) received the mean score of 6.24, and the negatively framed messages (NFM) received the mean score of 3.80. For the question related to the perceived believability of the scenario, the results showed that the PFM received the mean score of 5.88, and the NFM received the mean score of 5.29. These results demonstrated that participants think that the two framed messages are believable. For the question of concern, the results showed that the PFM received a mean score of 4.18, and the NFM received a mean score of 4.55. Based on the results from pre-test 2, it concluded that framed messages were being manipulated effectively and were employed in the main study.

#### 3.3 Main Study

To examine all proposed hypotheses, a 2 (Eco-label: Absence vs. Presence) x 2 (Framed Messages: Positive vs. Negative) between-subject design was employed with four different scenarios. The study sample was drawn from a convenience sample of students attending a southeastern university in the U.S with a non-probability sampling method. The participants were randomly assigned to one of the four scenarios and completed a questionnaire printed on paper in the class. Respondents voluntarily participated in the study and received extra credits for the class. Among 147 responses, seven were removed because they were incomplete, leaving a total of 140 usable responses.

Because of the unpredicted pandemic, student samples were not enough to conduct experimental design potentially causing the margin of error to be affected by sample size. Thus, gathering more sample sizes was recommended to find significance for the current study’s data analysis. Therefore, Amazon Mturk was employed

to increase the sample size increasing statistical power. The survey was available to people in the United States attending a university/college. All participants from Amazon Mturk who completed the questionnaire received USD 1.00 as a benefit of participation. Among a total of 40 responses, only 24 responses were valid. Therefore, the final sample consisted of 164 usable responses for the subsequent analysis.

### 3.4 Measurements

To measure consumer attitudes toward the brand, five items were adopted from Ahuvia and Bagozzi (1992), Faircloth et al. (2001), and Ranjbarian, Fathi and Lari (2011), using a seven-point semantic differential scale (e.g., “Good/Bad”, “Pleasant/Unpleasant”). The four dimensions of brand equity (brand image, brand credibility, perceived brand quality, and brand loyalty) was measured using a 7-point Likert-type scale where 1 = “Strongly disagree” to 7 = “Strongly agree”. Four items of the brand image were adapted from Chen’s (2010) study. For brand credibility, five items were adapted from Erdem and Swait (1998). To measure perceived brand quality, five items were adapted from Erdem and Swait (1998). Four items of brand loyalty were adapted from Lau (1999). Lastly, demographic information was assessed related to participants’ 1) gender, 2) age, 3) major, 4) ethnicity, 5) year at school, and 6) monthly allowance.

### 3.5 Comparing Student and Mturk Samples

Before combining data from two different sources (students and Mturk), an independent sample t-test between student samples ( $n = 140$ ) and Mturk samples ( $n = 24$ ) was conducted. The results show that there is no significant difference between student samples and Mturk samples on all items, except for two items in a brand image (“The brand is professional about environmental reputation,”  $t$ -value = 2.36,  $p < .05$  and “The brand is well established about an environmental concern,”  $t$ -value = 3.586,  $p < .001$ ) and one item in brand credibility (“This brand reminds me of someone who is competent and knows what s/he is doing,”  $t$ -value = 2.31,  $p < .05$ ). Thus, these three items were removed before proceeding with the subsequent analysis.

## 4. Results

Data obtained in the study was analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive analysis was conducted (e.g., frequency, means, and modes) on the final data set of demographic information.

Among the respondents in the final study ( $n = 164$ ), 76% were females ( $n = 124$ ) and 18% were males ( $n = 29$ ). The respondents were predominantly Caucasians (43.3%,  $n = 71$ ), followed by African Americans/Black (32.3%,  $n = 53$ ), Asian (10.4%,  $n = 17$ ), multiracial (9.7%,  $n = 16$ ), and Hispanic (4.3%,  $n = 7$ ). Most respondents (79.2%,  $n = 130$ ) were aged between 18–23 years, almost 17% ( $n = 28$ ) were between ages of 24–30 years. Approximately 31% ( $n = 50$ ) indicated their year at school as juniors; 26.2% ( $n = 43$ ) were sophomores, 25.6% ( $n = 42$ ) were seniors, 9.8% ( $n = 16$ ) were freshmen, and 8% ( $n = 13$ ) were graduates. In addition, most respondents (81%,  $n = 133$ ) were Consumer, Apparel, and Retail Studies major. Lastly, related to monthly income, almost 63% ( $n = 98$ ) reported a monthly income of less than 1,000 USD. To ensure the reliability of the variables, Cronbach’s alpha was calculated. All measures were reliable, except brand loyalty ( $\alpha = 0.69$ ) and brand credibility ( $\alpha = 0.67$ ) which displayed reliability close to 0.70 (Nunnally & Bernstein, 1994).

### 4.1 Examining the Main Effects of Eco-Label and Message-Framing on Consumers’ Attitudes

To test hypotheses 1, 2, 4, and 5, multivariate analysis of variance (MANOVA) was conducted. MANOVA results revealed no significant main effect for eco-label, Wilks’ Lamda = 0.999,  $F_{(2, 151)} = 0.074$ ,  $p = .929$ ,  $\eta^2 = .001$ . Box’s M was not significant (Box’s M = 14.273,  $p = .125$ ), providing insufficient evidence that the covariance matrices differ. Thus, these data were appropriate for the MANOVA procedure. Further, the univariate main effect of eco-label was insignificant on both consumers’ attitudes toward the advertisement,  $F_{(1, 152)} = 0.002$ ,  $p = .964$ ,  $\eta^2 = .000$  ( $M_{\text{Absence of Eco-Label}} = 5.07$  versus  $M_{\text{Presence of Eco-Label}} = 5.06$ ) and consumers’ attitudes toward the brand,  $F_{(2, 151)} = 0.037$ ,  $p = .848$ ,  $\eta^2 = .000$  ( $M_{\text{Absence of Eco-Label}} = 5.30$  versus  $M_{\text{Presence of Eco-Label}} = 5.24$ ). Therefore, H1 and H2 were not supported.

For H4 and H5, MANOVA results revealed a significant main effect for message framing, Wilks’ Lamda = 0.891,  $F_{(2, 151)} = 9.252$ ,  $p < .001$ ,  $\eta^2 = .109$ . Further, the univariate main effect of message framing was significant on both consumers’ attitudes toward the advertisement,  $F_{(1, 152)} = 4.780$ ,  $p < .05$ ,  $\eta^2 = .03$  and consumers’ attitudes toward the brand,  $F_{(2, 151)} = 15.771$ ,  $p < .001$ ,  $\eta^2 = .094$ . Given the significant differences in consumers’ attitudes toward the advertisement and consumers’ attitudes toward the brand, post-hoc comparison was recommended. Before conducting the post-hoc comparisons, Levene’s test of equality of error variances was performed. Results revealed that although the groups were not equivalent, the insignificant difference of Levene’s test of equality of error variances on both two dependent variables, consumers’ attitudes toward the advertisement,  $F_{(3, 152)} = 1.060$ ,

$p = .368$  and consumers' attitudes toward the brand,  $F_{(3, 152)} = 1.042$ ,  $p = .376$ , indicated they had similar variances. Therefore, Tukey's HSD test was employed to conduct post-hoc comparisons. Results revealed that respondents' attitudes toward the advertisement were more favorable when environmental messages were positively framed than when they were negatively framed ( $M_{\text{Positive Frame Messages}} = 5.28$  versus  $M_{\text{Negative Frame Messages}} = 4.83$ ,  $p < .05$ ). Likewise, respondents' attitudes toward the brand were more favorable when environmental messages were positively framed than when they were negatively framed ( $M_{\text{Positive Frame Messages}} = 5.62$  versus  $M_{\text{Negative Frame Messages}} = 4.90$ ,  $p < .05$ ). Therefore, H4 and H5 were supported.

#### 4.2 Examining the Main Effects of Eco-Label and Message-Framing on Brand Equity

To test hypotheses 3 and 6, multivariate analysis of variance (MANOVA) was conducted. MANOVA results revealed no significant main effect of eco-label on brand equity, Wilks' Lamda = 0.973,  $F_{(2, 151)} = 1.002$ ,  $p = .409$ ,  $\eta^2 = .027$ . Furthermore, Box's M was not significant (Box's M = 41.452,  $p = .117$ ), providing evidence for the MANOVA procedure. Further, univariate results showed that there were no significant main effect of eco-label for brand image,  $F_{(1, 149)} = 1.125$ ,  $p = .291$ ,  $\eta^2 = .007$  ( $M_{\text{Absence of Eco-Label}} = 5.56$  versus  $M_{\text{Presence of Eco-Label}} = 5.34$ ), brand credibility,  $F_{(1, 149)} = 0.013$ ,  $p = .908$ ,  $\eta^2 = .000$  ( $M_{\text{Absence of Eco-Label}} = 5.06$  versus  $M_{\text{Presence of Eco-Label}} = 5.05$ ), perceived brand quality,  $F_{(1, 149)} = .706$ ,  $p = .402$ ,  $\eta^2 = .005$  ( $M_{\text{Absence of Eco-Label}} = 4.81$  versus  $M_{\text{Presence of Eco-Label}} = 4.93$ ), and brand loyalty,  $F_{(1, 149)} = 0.353$ ,  $p = .553$ ,  $\eta^2 = .002$  ( $M_{\text{Absence of Eco-Label}} = 4.65$  versus  $M_{\text{Presence of Eco-Label}} = 4.73$ ). Therefore, H3 was not supported.

MANOVA results revealed significant main effect of message-framing on brand equity, Wilks' Lamda = 0.924,  $F_{(2, 151)} = 3.005$ ,  $p < .05$ ,  $\eta^2 = .076$ . Further, univariate results showed that there were significant main effect of message-framing for brand image,  $F_{(1, 149)} = 11.102$ ,  $p < .001$ ,  $\eta^2 = .069$ , brand credibility,  $F_{(1, 149)} = 5.090$ ,  $p < .05$ ,  $\eta^2 = .033$ , perceived brand quality,  $F_{(1, 149)} = 3.930$ ,  $p < .05$ ,  $\eta^2 = .026$ . However, there was marginally significant main effect of message-framing for brand loyalty,  $F_{(1, 149)} = 3.639$ ,  $p = .058$ ,  $\eta^2 = .024$ .

Tukey's HSD test was employed to conduct post-hoc comparisons. Results revealed that respondents' evaluations of brand image, brand credibility, and perceived brand quality were more favorable when environmental messages were positively framed than when they were negatively framed (Brand Image:  $M_{\text{Positive Frame Messages}} = 5.73$  versus  $M_{\text{Negative Frame Messages}} = 5.17$ ,  $p < .05$ ; Brand Credibility:  $M_{\text{Positive Frame Messages}} = 5.25$  versus  $M_{\text{Negative Frame Messages}} = 4.86$ ,  $p < .05$ ; and Perceived Brand Quality:  $M_{\text{Positive Frame Messages}} = 5.04$  versus  $M_{\text{Negative Frame Messages}} = 4.70$ ,  $p < .05$ , respectively). In addition, respondents' evaluations of brand loyalty were more favorable when environmental messages were positively framed than when they were negatively framed ( $M_{\text{Positive Frame Messages}} = 4.84$  versus  $M_{\text{Negative Frame Messages}} = 4.53$ ,  $p = .058$ ). Therefore, H6 was partially supported.

#### 4.3 Examining the Interaction Effects Between Eco-Label and Message Framing on Consumers' Attitudes

The results of MANOVA revealed no significant interaction effect of eco-label and message-framing on consumers' attitudes toward the brands, Wilks' Lamda = 0.991,  $F_{(2, 151)} = 1.179$ ,  $p = .279$ ,  $\eta^2 = .009$ . Moreover, the univariate interaction effect of eco-label and message-framing on consumers' attitudes toward the advertisement was not significant,  $F_{(1, 152)} = .326$ ,  $p = .569$ ,  $\eta^2 = .002$ . Thus, H7 was not supported. In addition, There was no significant interaction effect of eco-label and message-framing on consumers' attitudes toward the brand, Wilks' Lamda = 0.991,  $F_{(2, 151)} = .713$ ,  $p = .492$ ,  $\eta^2 = .009$ . The univariate interaction effect of eco-label and message-framing on consumers' attitudes toward the brand was not significant,  $F_{(1, 152)} = 1.179$ ,  $p = .279$ ,  $\eta^2 = .008$ . Thus, H8 was not supported.

Table 1. Two-way Multivariate Analysis of Variance (MANOVA) of eco-label and message framing on attitudes

Independent Variable	Dependent Variable	F-value	p-value
Message Framing	MANOVA-Wilk's Lambda Univariate F tests	9.252	.001**
	Attitudes toward the advertisement	21.2	.030*
	Attitudes toward the brand	15.771	.001**
	MANOVA-Wilk's Lambda Univariate F tests	.074	.929
Eco-Label	Attitudes toward the advertisement	.002	.964
	Attitudes toward the brand	.037	.964
	MANOVA-Wilk's Lambda Univariate F tests	.713	.492
Message Framing X	Attitudes toward the advertisement	.326	.569
Eco-label	Attitudes toward the brand	1.179	.279

Note. \*F-value: significant,  $p < .05$ ; \*\*F-value: significant,  $p < .001$ .

#### 4.4 Examining the Interaction Effects Between Eco-Label and Message-Framing on Brand Equity

The results of MANOVA revealed no significant interaction effect of eco-label and message-framing on consumers' evaluations of brand equity, Wilks' Lambda = 0.985,  $F_{(2, 151)} = .546$ ,  $p = .702$ ,  $\eta^2 = .015$ . Moreover, the univariate interaction effect of eco-label and message-framing on the brand image was not significant,  $F_{(1, 149)} = .133$ ,  $p = .716$ ,  $\eta^2 = .001$ . Likewise, the univariate interaction effect of eco-label and message-framing on brand credibility was also insignificant,  $F_{(1, 149)} = .015$ ,  $p = .903$ ,  $\eta^2 = .000$ . In addition, the univariate interaction effect of eco-label and message-framing on perceived brand quality was insignificant,  $F_{(1, 149)} = .000$ ,  $p = .983$ ,  $\eta^2 = .000$ . Lastly, the univariate interaction effect of eco-label and message-framing on brand loyalty was also insignificant,  $F_{(1, 149)} = .896$ ,  $p = .345$ ,  $\eta^2 = .006$ . Thus, H9 was not supported.

Table 2. Two-Way Multivariate Analysis of Variance (MANOVA) of eco-label and message framing on consumers' evaluation of brand equity

Independent Variable	Dependent Variable	F-value	p-value
Message Framing	MANOVA-Wilk's Lambda Univariate F tests	3.005	.020*
	Image	11.102	.001**
	Credibility	5.090	.026*
	Loyalty	3.639	.058 <sup>mar</sup>
	Perceived Quality	3.930	.049*
Eco-Label	MANOVA-Wilk's Lambda Univariate F tests	1.002	.408
	Image	1.125	.291
	Credibility	.013	.908
	Loyalty	.353	.553
	Perceived Quality	.706	.402
Message Framing X Eco-label	MANOVA-Wilk's Lambda Univariate F tests	.546	.702
	Image	.133	.716
Eco-label	Credibility	.015	.903
	Loyalty	.896	.345
	Perceived Quality	.000	.983

Note. \*F-value: significant,  $p < .05$ ; \*\*F-value: significant,  $p < .001$ .

#### 4.5 Examining the Relationships Between Consumers' Attitudes and Brand Equity

To test hypothesis 10, a series of simple regressions were performed independently using consumers' attitudes toward the advertisement as an independent variable and four dimensions of brand equity. Results revealed that consumers' attitudes toward the advertisement significantly affected brand image ( $R^2 = .270$ , adjusted  $R^2 = .265$ ,  $F_{(1, 152)} = 56.14$ ,  $p < .001$ ;  $\beta = .52$ ,  $t$ -value = 7.49,  $p < .001$ ), brand credibility ( $R^2 = .281$ , adjusted  $R^2 = .276$ ,  $F_{(1, 146)} = 57.109$ ,  $p < .001$ ;  $\beta = .53$ ,  $t$ -value = 7.58,  $p < .001$ ), perceived brand quality ( $R^2 = .408$ , adjusted  $R^2 = .405$ ,  $F_{(1, 152)} = 104.93$ ,  $p < .001$ ;  $\beta = .64$ ,  $t$ -value = 10.24,  $p < .001$ ), and brand loyalty ( $R^2 = .378$ , adjusted  $R^2 = .376$ ,  $F_{(1, 151)} = 91.91$ ,  $p < .001$ ;  $\beta = .62$ ,  $t$ -value = 9.59,  $p < .001$ ). Hence, H10 was supported.

Table 3. Simple regression results of consumers attitudes towards the advertisements on consumers' evaluation of brand equity

Dependent Variable	Coefficients ( $\beta$ )	t-value	p-value	R-squared	F-value
Image	.0519	7.49	.001**	.27	56.14***
Credibility	.530	7.56	.001**	.28	57.11***
Loyalty	.615	9.59	.001**	.38	91.91***
Perceived Quality	.639	9.59	.001**	.41	104.93***

Note. \*\*\*p-value:  $p < .001$ .

In addition, results of simple regressions revealed that consumers' attitudes toward the brand significantly affected brand image ( $R^2 = .291$ , adjusted  $R^2 = .286$ ,  $F_{(1, 157)} = 64.30$ ,  $p < .001$ ;  $\beta = .54$ ,  $t$ -value = 8.02,  $p < .001$ ), brand credibility ( $R^2 = .202$ , adjusted  $R^2 = .197$ ,  $F_{(1, 151)} = 38.30$ ,  $p < .001$ ;  $\beta = .45$ ,  $t$ -value = 6.19,  $p < .001$ ), perceived brand quality ( $R^2 = .351$ , adjusted  $R^2 = .347$ ,  $F_{(1, 156)} = 84.43$ ,  $p < .001$ ;  $\beta = .59$ ,  $t$ -value = 9.19,  $p < .001$ ), and brand loyalty ( $R^2 = .343$ , adjusted  $R^2 = .339$ ,  $F_{(1, 156)} = 81.39$ ,  $p < .001$ ;  $\beta = .59$ ,  $t$ -value = 9.02,  $p < .001$ ). Hence, H11 was supported.



Table 4. Simple regression results of consumers attitudes towards the brand on consumers' evaluation of brand equity

Dependent Variable	Coefficients ( $\beta$ )	t-value	p-value	R-squared	F-value
Image	0.539	8.02	.001**	.29	64.29***
Credibility	0.450	6.19	.001**	.20	38.30***
Loyalty	0.586	9.02	.001**	.34	81.39***
Perceived Quality	0.593	9.19	.001**	.35	84.43***

Note. \*\*\*p-value:  $p < .001$ .

## 5. Discussions and Implications

### 5.1 The Main Effects of The Eco-Label and The Type of Message-Framing

The results from H1 and H2 revealed that the eco-label was not significantly related to consumers' attitudes toward the advertisement and the brand. The results of the current study contradict previous research (Daugbjerg, Smed, Andersen, & Schwartzman, 2014; McCarthy & Burdett, 1998; Taufique et al., 2017). It may be because these previous studies examined the impact of the eco-label related to food that seems to have implications for health, to which consumers seem to pay less attention regarding apparel consumption. Besides, McEachern and Warby (2008) found that 97% of their study's participants read value-based labels prior to purchasing meat products, suggesting they seemed to focus on the food label. Another underlying reason for this insignificant effect of the eco-label on consumers' attitudes toward the advertisement and the brand is that images containing only eco-labels may not indicate a certain level of trust in the claims by consumers (Atkinson & Rosenthal, 2014; Hustvedt & Dickson, 2009). Thus, the results of this study imply that using the eco-label as a symbol may be inadequate to offer all attributes of sustainable products (Atkinson & Rosenthal, 2014; Hustvedt & Dickson, 2009).

The results of H3 revealed no significant effect of the eco-label on consumers' evaluation of the brand equity. Although Atkinson and Rosenthal (2014) and Goswami (2008) explained that the eco-label could positively aid in consumer decision-making, the eco-label signal employed in the current study may not instill enough trust and credibility. Larceneux et al. (2012) stated that using the eco-label tended to be less effective with high brand equity. In this current study, the means of all four dimensions of brand equity were above 5.00, indicating a high degree of brand equity; as such, the high degree of dimensions of brand equity could possibly explain the insignificant effects of the eco-label.

The results of H4, 5 and 6 revealed that positively framed messages had a stronger effect on consumers' attitudes toward the advertisement, brand, and consumers' evaluation of brand equity comparing negatively framed messages. This result was consistent with previous studies (Donovan & Jalleh, 1999; Forbes Cohen, Cullen, Wratten, & Fountain, 2009; Hustvedt & Dickson, 2009; Lin & Yang, 2014; Newman et al., 2012). This result implies that as the advertisements serve as a source of information, the way in which the message is framed not only positively influences consumers' attitudes but also changes their brand equity evaluations. This result implies that as the advertisements serve as a source of information, the way in which the message is framed not only positively influences consumers' attitudes but also changes their brand equity evaluations (Newman et al., 2012).

### 5.2 The Interaction Effects of The Eco-Label and The Type of Message-Framing

Previous studies suggested the potential interaction effect between the eco-label and message-framing on consumers' attitudes toward organic food and brand loyalty (Arora, 2000; Tang et al., 2004). However, we did not find this interaction effect of eco-label and message framing on consumers' attitudes toward the advertisement and the brand as well as consumers' evaluations of brand equity in eco-apparel. As Tang et al. (2004) explained, although the green market's potential benefits are expected to grow given the rise of consumerism, some consumers are still suspicious about advertising claims, rendering them unhesitatingly engage in purchasing green products. Crane (2000) added that one of the main reasons consumers hesitate to purchase sustainable products is because they are uncertain whether buying sustainable products would minimize environmental issues compared to purchasing non-sustainable products.

### 5.3 The Relationships Between Consumers' Attitudes Toward the Advertisement, Brand, and Consumers' Evaluations of the Brand Equity

This current study found a significant relationship between consumers' attitudes and their evaluations of different dimensions of brand equity, and such findings are consistent with previous studies findings which reported that

the consumers' attitude is a significant predictor of perceived brand equity (Chen, 2010; Hsu, 2012; Sallam & Wahid, 2012). Our findings indicated that consumers' favorable attitude toward the advertisements is positively associated with consumers' evaluations of brand image and brand credibility (Hsu, 2012). In other words, promotional advertising about eco-apparel could possibly arouse consumers to display favorable attitudes toward the brand. Our findings may also imply that consumers who like the advertisement for eco-apparel can potentially become loyal consumers in the future. This significant relationship between consumers' attitudes toward the brand and their evaluation of brand equity can also positively influence future purchase behavior as consumers' favorable evaluations of brand equity can assist firms in maintaining sustainable cash flow and increasing competitiveness in the market (Bartels & Hoogendam, 2011; Pappu, Quester, & Cooksey, 2005; Yoo & Donthu, 2001).

#### 5.4 Theoretical and Managerial Implications

Theoretically, this study contributes to the literature of signaling theory, eco-labels, message-framing techniques, consumer attitude, and brand equity. Although many researchers conducted research about message-framing and eco-label usage on the product in the different categories of goods such as foods on consumer behavior, little study has examined the impact of eco-label and message-framing on consumers' attitudes and their brand equity evaluations (Forbes et al., 2009; Sanchez-Sabate & Sabaté, 2019). Our findings deepen the understanding from the prior research on eco-label and message-framing literature by demonstrating the impact of positively framed messages on consumers' attitudes and eco-apparel brand equity evaluations. As this study adopts signaling theory with a stimulus of eco-label, it expands the application of signaling theory on consumer attitudes in the context of eco-apparel. This study also contributes to the study of branding as it provides valuable information about how to enhance brand equity evaluations via the use of message-framing and favorable consumers' attitudes.

For managerial implications, it is evident that a positively framed message substantiates a more favorable consumer attitude toward the advertisement and the brand. Thus, when marketers/advertisers consider advertising the eco-apparel to attract consumers, they should include positive messages about eco-apparel rather than use negative messages. For example, marketers should include the benefits (e.g., minimizing the carbon footprint, saving water, and protecting from the allergic reaction of using synthetic fiber) when consumers choose to purchase eco-apparel instead of non-eco-apparel. In addition, the study's findings indicate that consumers with positive attitudes toward the advertisement and brand tend to evaluate the brand equity favorably. Thus, marketers should try to maintain consumers' positive attitudes toward the brand based on previous suggestions.

#### 5.5 Limitations

Although the current study offers several managerial and theoretical considerations, the study contains a few limitations. First, insignificant effects of eco-label may be the product of consumers' lack of comprehension of the meaning and implications of eco-labels. Therefore, future research should include not only images of eco-labels but also contain specific descriptions about eco-labels, such as what the eco-label means and how eco-labels could benefit consumers when they choose to purchase eco-label products. Second, the current study used the simple design of a normal t-shirt. Future studies can replicate this study by employing appropriate product categories to target markets such as jeans or dresses. In addition, the current research uses a fictitious brand; future research should consider including actual sustainable apparel brand. Lastly, the study used only one eco-label, a global organic textile standard (GOTS); however, there are different eco-labels such as EU eco-label, and US Organic available in the market. Thus, future studies should consider examining the impact of different eco-labels on consumers' attitudes and brand equity evaluations.

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## Appendix A

### Four Conditions for The Experiment

SA\*LA, a new clothing company based in Los Angeles, is launching an affordable line of casual clothing for men and women. Its products are made with a blend of recycled and organic cotton without the use of pesticides or chemicals, which can protect the soil and save water.

<p style="text-align: center;"><i>SA*VA</i></p>  <p style="text-align: center;"><b>WITHOUT ECO-APPAREL, WE MIGHT EXPECT SOME CONSEQUENCES...</b></p> <ul style="list-style-type: none"> <li>• ENDANGERING THE ENVIRONMENT FROM EXCESSIVE USE OF TEXTILES</li> <li>• WASTING UNNECESSARY AMOUNTS OF TEXTILES</li> <li>• USING EXCESSIVE WATER</li> <li>• INCREASING UNNECESSARY AMOUNT OF CARBON FOOTPRINT</li> </ul>	<p style="text-align: center;"><i>SA*VA</i></p>  <p style="text-align: center;"><b>WITH ECO-APPAREL, WE CAN IMAGINE SOME BENEFITS...</b></p> <ul style="list-style-type: none"> <li>• PROTECTING THE ENVIRONMENTS</li> <li>• REDUCING USE OF UNNECESSARY TEXTILES</li> <li>• REDUCING WATER CONSUMPTION</li> <li>• REDUCING CARBON FOOTPRINT</li> <li>• HAVING LIGHT CLOTHES</li> <li>• HAVING NO-ALLERGIC REACTIONS TO CLOTHES</li> </ul>
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