Journal of Business Research 86 (2018) 119–129

Contents lists available at ScienceDirect

Journal of Business Research

journal homepage: www.elsevier.com/locate/jbusres

It's a match when green meets healthy in sustainability labeling

Yoon-Na Cho[a,*], Ernest Baskin[b]

[a] Department of Marketing and Business Law, Villanova School of Business at Villanova University, Villanova, PA, United States
[b] Department of Food Marketing, Haub School of Business, Saint Joseph's University, Philadelphia, PA, United States

ARTICLE INFO

Keywords:
Consumer packaged goods
Healthiness
Match-up hypothesis
Skepticism
Sustainability labeling

ABSTRACT

The environmental conscientiousness food trend is only expected to increase as consumers demand more information on the environmental and social impacts of their food purchases. Drawing from consumers' lay theories and the match-up hypothesis, this study examines the influence of the interaction between healthiness and sustainability levels on consumer product evaluations. In particular, it argues that the fit between healthiness and sustainability (both high or both low) drives consumer buying preferences as well as product perceptions. However, a general skepticism in sustainability claims moderates this effect.

1. Introduction

As consumers seek to integrate sustainable practices into their food consumption habits, providing information through sustainability labels on food packaging has become an important priority for policymakers and consumer advocates (Consumer Reports National Research Center, 2014). Consumers' food choices may have a significant impact on the environment, such as the distortion of ecosystem services and biodiversity (World Wildlife Fund, 2014). Further, the sustainability of meals can vary greatly, independent of the nutritional content of the meals; in fact, some foods can contribute up to nine times more to greenhouse gas emissions than others based on their production process (Carlsson-Kanyama, 1998). Thus, governmental agencies, retailers, and manufacturers are actively engaged in creating novel ways to provide product sustainability information to consumers in an attempt to shift their preferences and create a more sustainable environment (Sustainability Consortium, 2018).

While enhancing the purchase of sustainable products through the use of labeling is a laudable goal, consumer perceptions of the labeling and its subsequent impact on purchase behavior can vary. Consumers formulate inferences based on food packaging information (e.g., Broniarczyk & Alba, 1994) and the inferences they form may be biased by other contextual factors (Frederick, Lee, & Baskin, 2014; Tversky & Kahneman, 1974). These biases can often lead consumers to incorrect conclusions. For instance, consumers inferred a lower environmental impact from purchases that included an organic item than from those without such an item, even though the organic item created a health halo and allowed the inclusion of other non-green products into the consumer's basket (Gorissen & Weijters, 2016).

Consumers also frequently categorize products as either healthy or unhealthy (Rozin, Ashmore, & Markwith, 1996) based on the product's attributes. These labels also often reinforce consumers' own biases. For example, unhealthy food has been associated with pleasure and taste (Roininen et al., 2001), whereas healthy food has generally associated with not being tasty (Raghunathan, Naylor, & Hoyer, 2006).

Previous research has also focused on the role of sustainability in consumer perceptions and buying behavior. Altruistic, other-focused claims such as environmental, sustainability claims can increase consumer purchases of organic foods suggesting a link between sustainability and healthiness (Kareklas, Carlson, & Muehling, 2014). In addition, the impact of sustainability labeling differs depending on the consumer segment to which one belongs (Verain, Sijtsema, & Antonides, 2016). However, this research has not investigated how the sustainability level of a product and its perceived healthiness interact. Therefore, the present research focuses on the interaction of sustainability level and healthiness perceptions as well as their downstream consequences. We posit that consumers expect a positive correlation between health and sustainability and, when they do not find this correlation; their willingness to purchase the product in question is negatively affected. Past research has suggested that consumers often encounter health and sustainability together in products, such as with vegetarian meals (which are both healthy and sustainable) as compared to non-vegetarian meals (which are generally considered to be unhealthy and unsustainable; Kareklas et al., 2014). If consumers encounter various product attributes together over time, the associations between them may become automatic (Bargh & Chartrand, 1999) such that, given one attribute, a positive correlation on the other may be predicted. In prior research, Verain et al. (2016) found that

* Corresponding author.
E-mail addresses: yoon-na.cho@villanova.edu (Y.-N. Cho), ebaskin@sju.edu (E. Baskin).

https://doi.org/10.1016/j.jbusres.2018.01.050
Received 26 April 2017; Received in revised form 15 January 2018; Accepted 17 January 2018
0148-2963/ Published by Elsevier Inc.

sustainability had a positive effect on perceived health, especially for highly sustainability-conscious consumers. That being said, prior literature on the match-up hypothesis (Forkan, 1980; Kamins, 1990) has also suggested that consumers prefer products which match their expectations. We contribute to the literature on the match-up hypothesis by examining how the interaction of health perceptions and sustainability information processing affect food purchasing. This hypothesis, sometimes referred to as *fit*, has been applied in a number of contexts including spokespeople and celebrity influence on consumer responses (Kahle & Homer, 1985), brand extensions (Aaker & Keller, 1990), and product creation (Smith & Andrews, 1995) among others. We posit that fit may also capture the interplay between other variables that consumers have previously encountered together such as the relationship between health and sustainability. In particular, while the previous literature shows a general positive relationship between sustainability and health, our work explicitly considers the implications to consumers of what happens when this relationship is broken. Specifically, we study various "levels" of sustainability labels and their interactions with healthiness.

Thus, when sustainability labeling does not match up to the consumers' preconceived notions (i.e. not both high and not both low), there is a mismatch of expectations. Expectation mismatches have been shown to lead to decreased satisfaction with a product (Cardozo, 1965). As such, given that healthiness perceptions act as an expectation for the product, a mismatch between such perceptions and sustainability labeling may lead to lowered consumer satisfaction. This may lead consumers to question the veracity of either the sustainability or of the health information. However, this will be moderated based on the consumer's level of sustainability skepticism. Specifically, if consumers have a high level of sustainability skepticism, they may pay less attention to the fit between the product's healthiness and its sustainability label. As a result, the effect of sustainability information may be mitigated for highly skeptical individuals, whereas their counterparts will evaluate less favorably the product that has a low fit. While prior literature suggests that consumers generally perceive a high or moderate fit more favorably than a low fit in the areas of brand extension (Dens & De Pelsmacker, 2010), celebrity endorsements (Misra & Beatty, 1990), and corporate social responsibility (Pracejus & Olsen, 2004), the influence of perceived fit in healthiness and sustainability on evaluations has not been previously examined.

We aim to contribute to the literature in a number of ways. First, we analyze how sustainability information interacts with product healthiness with regards to consumers' attitudes and purchase intentions for the product. We look at the match-up hypothesis and the underlying skepticism towards products which do not match our intuitions as the underlying process. In addition, given that consumers are increasingly concerned with the environmental impact associated with their food purchases (Cone Communications, 2015), this research offers opportunities to better understand how the provision of sustainability labeling can influence food purchasing decisions by consumers. We also provide insights into the current initial sustainability labeling initiatives by non-governmental organizations, policy makers, and the food industry to reveal the potential efficacy of environmental impact-related information on product packaging.

2. Theoretical framework

2.1. Sustainability attributes in product evaluations

While various NGOs have suggested the importance of making food consumption choices that minimize environmental impact (World Wildlife Fund, 2014), prior research on the effects of sustainability labels on packaged food products has been limited and largely fragmented. Studies related to the environmental impacts associated with food consumption have been restricted to certain product categories and labels, and conducted mostly in European countries (Grunert, Hieke, & Wills, 2014). Most research in this area has previously examined the provision of environmental related information with vague claims, such as *all natural* and *ozone-friendly* (Kangun, Carlson, & Grove, 1991). Few studies have examined the various levels of quantitative sustainability labels and their effects. As such, it is difficult to generalize the effectiveness of these sustainability labels. Prior studies have focused on consumers' preferences for different labeling formats and suggest that consumers generally prefer concrete, specific information rather than information that is subject to multiple interpretations (e.g., Cho, 2015; Engels, Hansmann, & Scholz, 2010). Thus, to communicate environmental impact information objectively, this paper examines the influence of various levels of quantitative sustainability labels on consumers' attitudes and intentions.

2.2. Match-up hypothesis

Derived from Rossiter and Percy (1980), the match-up hypothesis is based on the principle that matching the advertising appeal with product function (i.e. fit; Kamins, 1990; Lavine & Snyder, 1996) produces an effective advertisement. The memory-based expectations of the attributes embodied by brands and product categories have been found to influence consumer responses to advertising (Lynch & Schuler, 1994; Misra & Beatty, 1990). The literature has focused on different product categories and contexts, such as celebrity endorsers (Kahle & Homer, 1985; Knoll & Matthes, 2017), sponsorships (Simmons & Becker-Olsen, 2006), brand alliances (Alcañiz, Cáceres, & Pérez, 2010), and brand extensions (Lynch & Schuler, 1994). To our knowledge, the matching effect has not been demonstrated in integrating the effect of sustainability labeling and the healthiness valence. The match-up effect occurs when there is a perceived label fit between an advertised product and the information provided in the advertisement, consistent with individuals' expectations regarding the product. Prior literature describes fit as the perceived link between two attributes or objects (Sen & Bhattacharya, 2001). A high fit between perceived health and health-related information has a crucial role in influencing consumers' responses (Carrillo, Varela, & Fiszman, 2012). In addition, product attributes are generally evaluated positively if matched with relevant products (Lynch & Schuler, 1994). In a similar vein, we propose that perceived label fit, the match between healthiness and sustainability levels, is expected to play a significant role in understanding the mechanism underlying information processing.

To support this hypothesis in the context of food advertisements, Choi, Paek, and Whitehill King (2012) suggest that a match between healthiness (healthy vs. unhealthy) and claim type (nutrient vs. taste) enhances perceived taste and health. Consistent with an unhealthy = tasty intuition (Raghunathan et al., 2006), ads that use taste claims for food that is perceived as unhealthy are evaluated as tastier but less healthy. In contrast, for ads that use nutrient-content claims with food perceived to be healthy, evaluations of the food are healthier but less tasty. Similarly, prior studies indicate that for healthy foods, health and nutrition claims are more effective than taste claims when it comes to product evaluations (Choi & Springston, 2014). The opposite pattern of results emerged for unhealthy foods, in that taste claims are evaluated more favorably than health and nutrition claims.

In a study of adolescents, Adams and Geuens (2007) demonstrate a match-up effect in which product attitudes and purchase intentions are evaluated more positively for healthy foods that have been paired with health slogans (e.g., "Munchies, the healthy, fiber rich snack!"), whereas unhealthy slogans (e.g., "Munchies, the sweet snack, full of taste!") are more effective with unhealthy foods. The authors suggest that consumers' perception of the healthiness of food products determines the appropriateness of slogans. Based on prior research, a parallel mechanism in consumer attitudes is anticipated for the association between food healthiness and sustainability. Consumers' expected degree of fit between healthiness and sustainability levels may influence product evaluations. Thus, we propose an interaction effect

between healthiness (healthy vs. unhealthy) and sustainability level (low vs. high). This is consistent with the view of match-up effect that suggests the interaction between source characteristics and product category (Kang & Herr, 2006). The source feature will be evaluated positively if matched with relevant products (Lynch & Schuler, 1994). Hence, a two-way interaction is proposed.

H_1. Healthy foods with high sustainability levels lead to more favorable purchase intentions. Unhealthy foods with low sustainability levels lead to more favorable purchase intentions as well.

Additionally, drawing from consumers' lay theories, heuristics, and prior literature (Kareklas et al., 2014; Verain et al., 2016), healthiness and sustainability levels are expected to be positively related: a healthy food with a high sustainability level or an unhealthy food with a low sustainability level will result in a high fit whereas a mismatch, a healthy food with a low sustainability level or an unhealthy food with a high sustainability level will reveal a low fit. High levels of perceived label fit result from consumers' acceptance of appropriateness and consistency with their expectations and associations related to healthiness and sustainability (e.g., Pracejus & Olsen, 2004). Further, if there is a match between the expectations and outcomes or actions, perceived label fit is likely to be high. In contrast, perceived label fit is considered low if there is a mismatch between the expectations and outcomes (Pracejus & Olsen, 2004). Hence, we expect a two-way interaction, similar to H_1.

H_2. Healthy foods with high sustainability levels lead to more favorable perceived label fit. Unhealthy foods with low sustainability will lead to more favorable perceived label fit as well.

2.3. Role of sustainability skepticism

Research has suggested that consumers differ with regards to their skepticism about a wide variety of marketplace actions including advertising (Leary, Vann, & Mittelstaedt, 2017; Obermiller & Spangenberg, 1998; Obermiller, Spangenberg, & MacLachlan, 2005). While this skepticism could have been developed from a number of sources including past mismatches between a firm's stated objectives and its actions (Forehand & Grier, 2003), consumers' current level of skepticism does influence the way in which they act towards the environment. For example, consumers who have low levels of skepticism are more likely to be influenced by sustainability information at the retail shelf (Cho, Soster, & Burton, Forthcoming), engage in environmentally friendly behaviors (Leary et al., 2017), and are more reactive to advertising (Obermiller et al., 2005). Since consumers who have high levels of skepticism are less reactive to advertising claims, it follows that they would be unlikely to show our effects of perceived label fit on purchase intentions thus predicting a moderation of our interaction effect of healthiness and sustainability skepticism:

H_{3a} and H_{3b}. The effect of sustainability skepticism will interact with perceived healthiness and sustainability levels. Consumers with low levels of sustainability skepticism will report more favorable a) purchase intentions, and b) perceived label fit when healthy foods display high sustainability levels. Similarly, these consumers will report more favorable a) purchase intentions, and b) perceived label fit when unhealthy food display low sustainability levels. This effect will be mitigated or eliminated for consumers with high levels of skepticism.

Drawing on the match-up hypothesis, the concept of fit is important in setting consumer expectations (Cardozo, 1965) and purchase intentions. Thus, consumers who perceive fit between sustainability and health should increase their purchase intentions since their expectations of the product will match what they find in the product. Working backwards, label fit should be perceived as high if both sustainability and healthiness are high or both healthiness and sustainability are low as explained for H_2. That means that our effect of increased purchase intentions should occur due to the perceived label fit between sustainability and health if that fit is indeed there. Thus, H_4 combines our proposed process, such that, a match between healthiness and sustainability will increase perceived label fit, which will increase purchase intentions. However, this effect will be moderated by individual differences in skepticism. We expect a conditional mediation (Hayes, 2013):

H_4. Perceived label fit will mediate the interaction effect of healthiness, sustainability levels, and consumer sustainability skepticism on purchase intentions. As the level of sustainability skepticism increases, the interaction effects of healthiness and sustainability are attenuated.

Three studies are reported to support these hypotheses. Study 1, a retail laboratory study, provides evidence for the interaction effect between food healthiness and sustainability levels on consumer decisions. Next, Study 2 examines the match-up effect on perceived label fit. In Study 3, the underlying process as well as the boundary condition is examined. Specifically, consumers will be more likely to evaluate food products favorably when the perceived label fit is high. However, such positive direct and indirect influences of healthiness and sustainability levels will be attenuated as consumers' levels of sustainability skepticism increase.

3. Study 1

To examine the potential match-up between healthiness (healthy vs. unhealthy) and sustainability level (low vs. high) in a real consumer packaged foods setting, Study 1 was conducted in a retail laboratory setting where product options within a category were displayed on retail shelves. To maintain the realism of the retail lab, participants were exposed to actual brands of cereal bars and canned sausage, and the store layout was designed to be similar to current retail marketplaces.

3.1. Methods

The study was one component of a larger retail shopping trip in which participants were told that retailers may voluntarily introduce various product labels at retail shelves for various product categories from cleaning supplies to groceries.[1] Participants were shown varied sustainability levels for the prepackaged food products of interest: cereal bars and canned sausage. The study was a 2 (healthiness: healthy [cereal bar] vs. unhealthy [canned sausage]) × 2 (sustainability level: low [4] vs. high [5]) repeated-measures design. Both healthiness and sustainability levels were within-subjects factors to mimic a realistic shopping experience. A box of cereal bars and a can of sausage were selected as healthy and unhealthy food items, respectively (Crofton, Markey, & Scannell, 2013). Sustainability labels were presented as "shelf talker" signage on the shelving (Appendix A). Participants were shown varied sustainability levels (low or high) associated with specific brands within the product categories (i.e., canned sausage and cereal bars). As a conservative test of our hypothesis, sustainability levels around the mid-range of a 1–10 sustainability scale were used. Both brands within the product category offered sustainability labels. Both the shelf position and the sustainability level assigned to brands within product categories were rotated and counterbalanced.

A total of 53 students from a large public university participated in

[1] The other categories used in the shopping task were of interest in studies unrelated to sustainability. They engendered the feel of a 'real' shopping trip while concurrently offering multiple categories and product considerations. This helped to minimize the potential for demand effects. In addition, the use of voluntarily labels was meant to mimic a retailer decision to include labels across a range of product rather than a manufacturer decision, which would be unrealistic. That being said, a more realistic scenario would have told consumers that the label was required by a third party.

the study for course credit and were randomly assigned to conditions (M_{age} = 22.2 years; 21 females). The first phase of the study took place in the retail lab while participants were examining products on the shelf (Appendix A). Participants spent approximately 20 min shopping within four product categories (two of which were the categories of interest for this study) in the lab. Another 10 min were spent performing an unrelated task, such as evaluating new products. For the second phase, participants spent approximately 20 min completing an online survey in a separate computer lab. When participants checked in for the study, they were given instructions about the shopping task and a paper and pencil survey to complete while shopping (i.e., during phase 1). These introductory materials also indicated that retailers had a choice about whether to provide particular labeling information on shelf tags (e.g., sustainability labeling). That is, participants were led to believe that the retailer had voluntarily decided to provide enhanced labels. Participants were also provided with a definition of sustainability and a description of the labeling system (sustainability performance score: 1 = worst, 10 = best). Given that the focus of this study was on sustainability labels, no specific pricing information was provided; participants were told that pricing for the products was comparable to those encountered at local retailers. After examining the products, participants completed phase 2 and were dismissed. Participants responded to seven-point Likert scales assessing purchase intentions for both brands across product categories: "Assuming you were going to buy a cereal bar/canned sausage product, would you be more likely or less likely to purchase this product?" (1 = less likely, 7 = more likely; Kozup, Creyer, & Burton, 2003). The study design presented all brands within the category simultaneously, allowing the assessment of repeated product evaluation measures for both brands within the category. During phase 2, participants completed a web-based survey that included demographic questions, manipulation checks, and a hypothesis-guessing question.

3.2. Results and discussion

3.2.1. Manipulation checks

Participants were asked whether product packaging revealed low (4) or high (5) sustainability levels for each brand encountered. Significant differences between the low and high sustainability level conditions revealed that the sustainability manipulation worked as intended (cereal bar: M_{Low} = 3.70 v. M_{High} = 5.28, F (1, 52) = 26.74, $p < 0.01$; canned sausage: M_{Low} = 3.49 v. M_{High} = 4.15, F (1, 52) = 4.52, $p < 0.05$). Finally, participants responded to an open-ended question regarding the purpose of the study; seven participants were eliminated from subsequent analyses due to having guessed the purpose of the study.

3.2.2. Effects on purchase decisions

A repeated measures ANOVA with purchase intentions as the dependent variable was conducted. A main effect of healthiness level (F (1, 54) = 4.11, $p < 0.01$; $\eta^2 = 0.38$) and sustainability level (F (1, 54) = 32.73, $p < 0.01$; $\eta^2 = 0.12$) emerged. As shown in Fig. 1, a two-way interaction of healthiness and sustainability level was significant for purchase intentions (F (1, 54) = 52.18, $p < 0.01$; $\eta^2 = 0.49$). The simple effect results indicated that for foods that are perceived to be healthy, consumers may be more likely to purchase cereal bars with high as compared to high sustainability levels (M_{High} = 6.29 v. M_{Low} = 3.85; F (1, 54) = 51.92, $p < 0.01$; $\eta^2 = 0.49$). Conversely, for foods that are perceived to be unhealthy, consumers may be more likely to purchase canned sausages with low as compared to high sustainability levels (M_{Low} = 4.18 v. M_{High} = 3.24; F (1, 54) = 6.16, $p < 0.05$; $\eta^2 = 0.10$). These findings provide initial support for the match-up effect and support H_1.

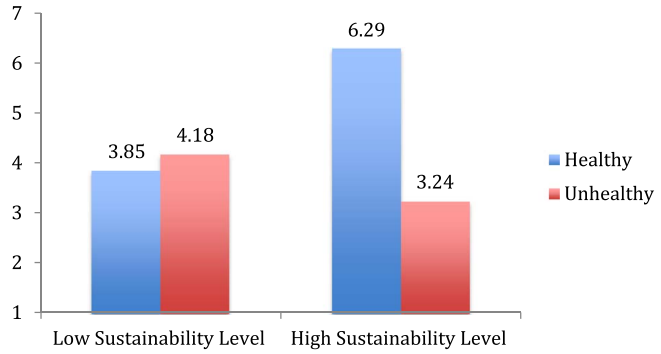


Fig. 1. The influence of sustainability labels on purchase intentions (Study 1).

4. Study 2

Conducted in a retail laboratory environment with actual brands, Study 1 provided initial support for the match-up hypothesis. Specifically, healthy foods are more likely to be purchased when the shelf tag indicates high sustainability levels, while unhealthy foods displayed with low sustainability levels are more likely to be purchased. To reflect the actual marketplace as closely as possible, real brands were used, but this also raises concern for potential brand effects. As such, the next study uses fictitious brand names using mocked-up packages to control for any brand effect. In addition, it looks specifically at the process through which we believe the match-up hypothesis is working by measuring perceived label fit directly. Finally, the study uses a different version of the sustainability labels in order to generalize our effect through different types of sustainability labels.

4.1. Pretests

A total of three pretests were conducted to determine the choice of stimuli and factors that are most relevant in capturing environmental impacts associated with product life cycle in constructing sustainability labels (GoodGuide, 2018). In the first pretest, eight dimensions of sustainability derived from prior literature (Cox, 2011) were evaluated to gauge the most appropriate dimensions to include in sustainability labeling. A total of 45 undergraduate students at a major southern university participated in a pencil and paper survey. Participants rated nine food products on the perceived level of environmental impact using a nine-point scale (1 = not harmful at all, 9 = extremely harmful). The participants were instructed to consider the stages in the product life cycle of food products as they evaluated each item. In addition, eight factors that contribute to negative environmental effects, such as the impact on ecosystems and global warming, were evaluated in terms of their perceived level of importance using a nine-point scale. The results showed that frozen packaged food was perceived to be most harmful to the environment (M = 5.91), fruits were perceived to be least harmful to the environment (M = 2.69), and five dimensions (e.g., water, energy, natural resources, material efficiency, and people and community) were viewed as the most important attributes to consider for environmental impacts. The findings were consistent with prior studies that suggest that substantially more energy is required for the production of frozen or canned products than fresh produce (Jungbluth, Tietje, & Scholz, 2000).

Based on the results from the first pretest, the next pretest was

designed to reveal the appropriate sustainability level for frozen packaged foods. If the sustainability level is inconsistent with consumers' expected product category internal reference points (Janiszewski & Lichtenstein, 1999), the information may not be ignored or underweighted. A total of 38 undergraduates were asked to evaluate appropriate sustainability levels for various food items (e.g., frozen packaged foods, canned foods, etc.). Specifically, students were asked, "When thinking about the range of brands on the market for each product category, what are the highest and lowest scores (across all available brands) you would expect to see?" The scores were assessed on a scale from 1 (lowest possible score) to 10 (highest possible score). The scores were averaged to calculate the mean score for each food item. For a frozen pizza, the results revealed the lowest possible sustainability level (M = 2.76) and the highest sustainability level (M = 6.47). For frozen fruits, the results indicated the lowest possible sustainability level (M = 4.87) and the highest sustainability level (M = 8.82). Considering these results, three was determined to be a low sustainability level while nine was determined to be a high sustainability level for frozen packaged foods.

In the last pretest, two versions of frozen food packages were created that differed in the level of healthiness. A sample of 70 undergraduate students evaluated frozen packages of vegetable pizza and apple pie on a 7-point bipolar item (1 = unhealthy, 7 = healthy). As a conservative test of healthiness in the same product category, fruits and vegetable frozen packaged foods, vegetable pizza and apple pie were selected. The package of vegetable pizza was evaluated healthier than the package of apple pie (M = 4.54 vs. M = 3.39; F (1, 68) = 8.00, $p < 0.01$). Based on these results and prior research, two versions of frozen packaged food that differ in the level of healthiness and sustainability labels containing the five dimensions were created (Appendix B). These dimensions were incorporated to be more realistic and consistent with the pilot tests conducted by governmental agencies and industries (Sustainability Consortium, 2018).

4.2. Methods

This study used a 2 (healthiness: healthy [vegetable pizza] vs. unhealthy [apple pie]) × 2 (sustainability level: low [3] vs. high [9]) between-subjects design. To manipulate healthiness, frozen packages of vegetable pizza and apple pie were used for healthy and unhealthy conditions, respectively. A total of 142 adults (M_{age} = 34.2 years; 53 females) were recruited from Mechanical Turk to participate in the study.

Prior to responding to a series of measures, the participants were provided with a brief introduction to sustainability labeling information. Specifically, the participants read: 1) The overall score of sustainability is based on a 1 to 10 scale where 1 is "Worst Performance" and 10 is "Best Performance" and 2) Sustainability is defined as conserving an ecological balance by avoiding depletion of natural resources. For perceived label fit, two 7-point semantic items were measured (r^2 = 0.77): "Considering this specific product type, the sustainability information provided on the front of the package is" (1 = unreasonable, inappropriate, 7 = reasonable, appropriate; e.g., Roehm & Roehm, 2014). Participants then completed demographics and manipulation checks. Specifically, for manipulation checks, participants were asked to evaluate the overall sustainability level indicated by the score (1 = low, 7 = high) and brand attitude for each package (1 = unfavorable; 7 = favorable).

4.3. Results and discussion

4.3.1. Manipulation checks

The efficacy of sustainability level information was checked; results indicated that a package with a score of nine was perceived to be higher than a package with a score of three (M_{High} = 5.46 vs. M_{Low} = 3.37; F (1, 140) = 76.50, $p < 0.01$). For healthiness manipulation, participants evaluated a package of vegetable pizza healthier than a package of apple pie ($M_{VeggiePizza}$ = 3.65 vs. $M_{ApplePie}$ = 2.85; F (1, 140) = 7.78, $p < 0.01$). In addition, there was no brand effect ($M_{VeggiePizza}$ = 4.90 vs. $M_{ApplePie}$ = 5.12; F (1, 140) = 0.63, $p > 0.40$). None of the participants were removed based on their responses to an open-ended questionnaire related to the purpose of the study.

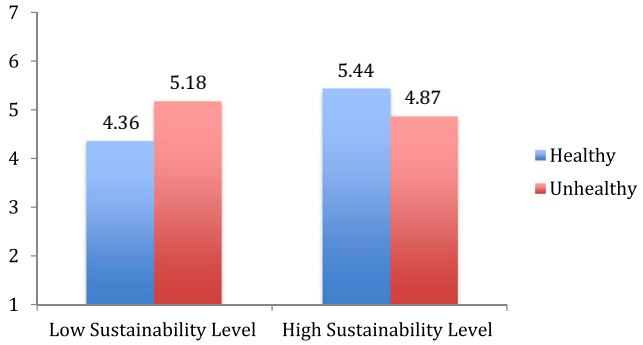


Fig. 2. The influence of sustainability labels on perceived label fit (Study 2).

4.3.2. Effects on product evaluations

ANOVA was conducted to test H_2. The main effect of healthiness did not emerge on perceived label fit ($p > 0.50$), but the main effect of sustainability level was marginally significant on perceived label fit (F (1, 138) = 3.64, $p = 0.06$; $\eta^2 = 0.03$). More importantly, as shown in Fig. 2, the two-way interaction of healthiness and sustainability level was significant for perceived label fit (F (1, 138) = 11.79, $p < 0.01$; $\eta^2 = 0.08$). Simple effects analyses indicated that when the sustainability level was low, consumers evaluated a package of apple pie to have a better label fit than a package of vegetable pizza ($M_{ApplePie = 5.18}$ vs. $M_{VeggiePizza}$ = 4.36; F (1, 138) = 8.22, $p < 0.01$; $\eta^2 = 0.06$). Conversely, for high sustainability level, consumers assessed a package of vegetable pizza to have a more favorable label fit than a package of apple pie ($M_{VeggiePizza}$ = 5.44 vs. $M_{ApplePie}$ = 4.87; F (1, 138) = 3.95, $p < 0.05$; $\eta^2 = 0.03$). These findings provide support for H_2.

The findings suggest that consumers may evaluate food products differently based on their healthiness and the specific level of sustainability. Specifically, the relationship between healthiness and sustainability indicates that a healthy food with a high sustainability level leads to more favorable label fit. Compared to a healthy food, unhealthy food with a low sustainability level was evaluated more favorably on perceived label fit. In addition, Study 2 shows that the effect persists across a label format different than that of Study 1, thus improving the generalizability of our effect.

While Study 2 used frozen food packages to represent the same product category, it is possible that using different products, whether a pizza or a pie, could have influenced the results. Consequently, the next study uses a fictitious bag of potato chips, and healthiness is manipulated to control for potential confounds. The sustainability label is slightly modified to examine the generalizability of sustainability information on food packaging, similar to prior research (e.g., Engels et al., 2010). Specifically, information about the various sustainability dimensions was removed and the levels modified, constructing a simpler version with the levels only. Lastly, the role of sustainability skepticism is examined to better understand the complexity of sustainability information processing on food packaging.

5. Study 3

Extending the findings from Studies 1 and 2, Study 3 examines the underlying process of match-up effect, determined by the extent of perceived label fit. Additionally, we examine the boundary condition that may arise for consumers with different levels of sustainability skepticism. We believe that those with a lower level of sustainability skepticism will be more influenced by label fit since they are more likely to believe product claims (Obermiller et al., 2005). To better control for the manipulation of healthiness, a fictitious bag of potato chips with a neutral brand name is used.

5.1. Methods

Study 3 was a 2 (healthiness: unhealthy vs. healthy) × 2 (sustainability level: low [4] vs. high [10]) between-subjects design with sustainability skepticism as a measured variable. To manipulate healthiness, participants were provided with a description that the potato chips contained 11 g of good fat and 2 g of bad fat in the healthy condition compared to 2 games of good fat and 11 g of bad fact in the unhealthy condition prior to exposure to a fictitious bag of potato chips. For sustainability level, scores of four and ten were used to represent low and high levels of sustainability (Appendix C).

A total of 189 adults (M_{age} = 43.7 years; 90 females) were recruited from Mechanical Turk to participate in the study. The procedure and measures were similar to those in Study 2. Experimental conditions were randomly assigned. After a brief introduction to the sustainability labeling information and healthiness manipulation, participants responded to a series of measures. To assess purchase intentions, two 7-point Likert items were used: "Assuming you were going to buy a bag of potato chips, would you be more likely or less likely to purchase this product?" (1 = less likely, 7 = more likely) and "How likely would you be to purchase this bag of potato chips, given the information shown on the front of the package?" (1 = very unlikely, 7 = very likely; Kozup et al., 2003; r^2 = 0.73). The perceived label fit measure was the same one used in the previous study (r^2 = 0.75). Three 7-point Likert items were used to assess the extent to which participants agreed with statements revealing sustainability skepticism: "I can depend on getting the truth from sustainability labeling," "I feel I've been accurately informed after viewing the sustainability label," and "Sustainability labeling is generally truthful" (1 = strongly disagree, 7 = strongly agree; α = 0.94).

5.2. Results and discussion

5.2.1. Manipulation checks

There was a significant difference with respect to perceived sustainability between the high and low sustainability level conditions (M_{High} = 6.27 vs. M_{Low} = 3.31; F (1, 179) = 315.29, $p < 0.001$), suggesting that the manipulations worked as intended. For the healthiness manipulation, participants evaluated the healthy condition healthier than the unhealthy condition ($M_{Healthy}$ = 4.74 vs. $M_{Unhealthy}$ = 4.31; F (1, 179) = 4.30, $p < 0.05$). Eight participants were eliminated based on responses to an open-ended questionnaire related to the purpose of the study. As a result, a total of 181 participants were used for further analyses.

5.2.2. Sustainability skepticism and product evaluations

Prior to analysis, the three skepticism items were reversed-coded (i.e., higher values indicate greater skepticism) and averaged to create a measure of sustainability skepticism. To test the predictions in H_3, each dependent variable was regressed based upon its healthiness, sustainability level, and interaction terms. All variables were mean centered prior to creating interaction terms so as to decrease multicollinearity (Aiken, West, & Reno, 1991). To further test whether consumer evaluations differed across levels of sustainability skepticism, simple slope analyses were performed at one standard deviation above and below the mean of sustainability skepticism (Aiken et al., 1991).

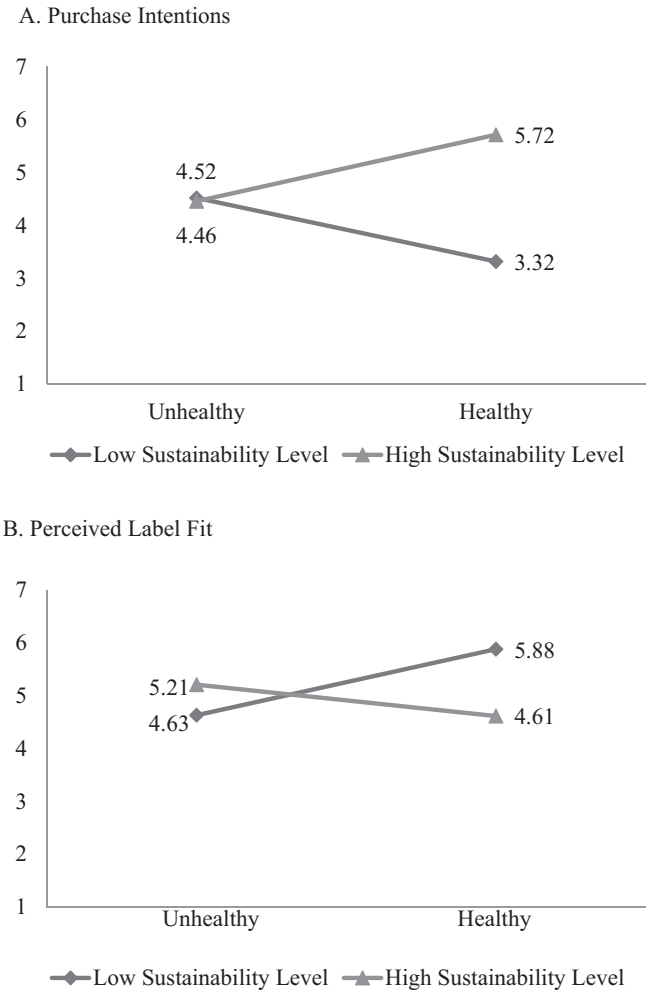


Fig. 3. The moderating role of sustainability skepticism (Study 3).
Given the nature of the three-way interaction between healthiness, sustainability levels, and sustainability skepticism on dependent measures, only the results for consumers with low levels of sustainability skepticism are plotted as the results for consumers with high levels of sustainability skepticism were nonsignificant ($p > 0.05$).

There was a significant negative effect of sustainability skepticism on purchase intentions ($\beta = -0.31$, $t = -3.71$, $p < 0.01$), and perceived label fit ($\beta = -0.50$, $t = -6.36$, $p < 0.01$). As expected, the healthiness × sustainability level × sustainability skepticism interaction was negative and significant on purchase intentions (H_{3a}: $\beta = -0.75$, $t = -2.22$, $p < 0.05$; $R^2 = 0.16$) and on perceived label fit ($\mathbf{H_{3b}}$: $\beta = 0.86$, $t = 2.76$, $p < 0.01$; $R^2 = 0.25$).

Follow-up contrasts were conducted for all of the dependent measures. For purchase intentions (H_{3a}), as shown in Fig. 3A, consumers with low levels of sustainability skepticism evaluated healthy food with high sustainability marginally more favorably than unhealthy food with high sustainability ($t = 1.71$, $p < 0.09$; $M_{Healthy}$ = 5.72 vs. M

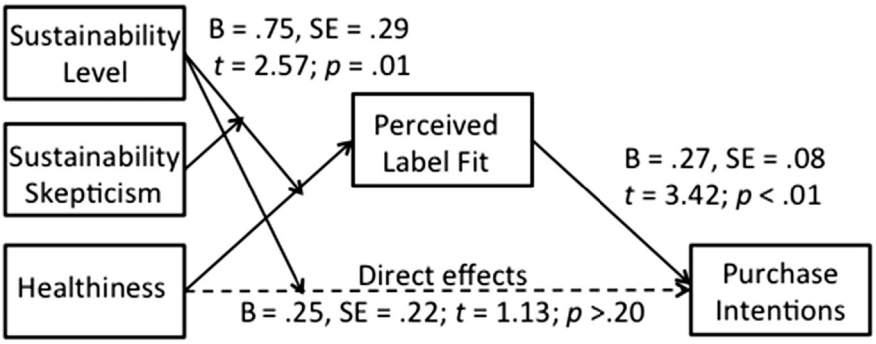


Fig. 4. Conditional process analysis (Study 3).
Note: straight arrows indicate significant results; dashed arrow indicates nonsignificance.

Table 1
The moderating role of sustainability skepticism and the meditating role of perceived label fit on purchase intentions (Study 3).

Variables	Effects on perceived label fit and purchase intentions					
	Perceived label fit (mediator)			Purchase intentions (outcome)		
	B	SE	*p*	B	SE	*p*
Food type	0.263	0.187	0.162	0.252	0.223	0.259
Sustainability level	−0.025	0.187	0.893	0.674	0.220	0.003
Sustainability skepticism	−0.479	0.073	0.000	–	–	–
Food type × sustainability level × sustainability skepticism	0.747	0.291	0.011	–	–	–

Sustainability level	Sustainability skepticism level (moderator)	Conditional indirect effect through perceived label fit		
		B	SE	Confidence interval
Low	Low	0.250	0.131	0.051 to 0.580
	Moderate	0.098	0.073	−0.016 to 0.284
	High	−0.054	0.116	−0.307 to 0.142
High	Low	−0.064	0.106	−0.309 to 0.120
	Moderate	0.048	0.080	−0.084 to 0.240
	High	0.160	0.137	−0.052 to 0.503

Note: When the mediator of label fit is not included in the model for effects on purchase intentions, there were no significant interactions ($p > 0.10$).
Specific results are available upon request.

$_{Unhealthy} = 4.46$). In contrast, these consumers evaluated unhealthy food with a low sustainability level marginally more favorably than healthy food with a low sustainability level ($t = -1.90$, $p = 0.06$; M $_{Unhealthy} = 4.52$ vs. M $_{Healthy} = 3.32$), supporting H_{3a}.

For perceived label fit (H_{3b}), as shown in Fig. 3B, consumers with low levels of sustainability skepticism evaluated healthy food with a low sustainability level to have more favorable label fit between healthiness and sustainability level as compared to an unhealthy food ($t = 1.97$, $p = 0.05$; M $_{Healthy} = 5.88$ vs. M $_{Unhealthy} = 4.63$). As expected, no significant differences emerged for consumers with high levels of sustainability skepticism ($t = -0.81$, $p > 0.40$; M $_{Unhealthy = 5.21}$ vs. M $_{Healthy} = 4.61$), providing support for H_{3b}.

5.2.3. Conditional process analysis

Using PROCESS model 13 (95% bias-corrected confidence intervals; bootstrap sample of $n = 5000$; Hayes, 2013), a conditional indirect effect of three predictor variables was examined to test H_4. All variables were mean-centered prior to the analysis (Aiken et al., 1991). The model included healthiness as a predictor variable, sustainability level and sustainability skepticism as moderators, perceived label fit as a mediator, and purchase intentions as a dependent measure (Fig. 4).

To test H_4, the healthiness × sustainability level × sustainability skepticism interaction, a conditional indirect effect of perceived label fit was found on purchase intentions for consumers with low levels of sustainability skepticism, as shown in Fig. 3. This indirect effect increased for a low sustainability level (B = 0.25; SE = 0.13; CI [0.05, 0.58]; Table 1). There was no indirect effect of healthiness for consumers with high levels of sustainability skepticism across sustainability level conditions (low: CI [−0.31, 0.14]; high: CI [−0.05, 0.50]). This pattern of results provides support for H_4. The findings suggest that label fit mediates the influence of healthiness on purchase intentions when consumers have low levels of sustainability skepticism and the sustainability level is low.

For purchase intentions, consumers with low levels of sustainability skepticism evaluated healthy food with a high sustainability level more favorably as compared to unhealthy food. In contrast, unhealthy food with a low sustainability level was evaluated more favorably as compared to healthy food, supporting the match-up effect. The conditional indirect effects suggest that perceived label fit is an underlying process occurring for consumers with low levels of sustainability skepticism to process sustainability information on food packaging with a low sustainability level. This suggests that consumers differ in the extent to which they are skeptical of sustainability labeling. Those that are skeptical are less likely to exhibit the effects we discuss here.

6. General discussion

Consumers make purchase decisions at grocery stores from a broad array of food and household products in a relatively short amount of time (Hoyer, 1984) and their choices often influenced by the environment around them (Baskin et. al., 2016). However, there is very little information on the environmental impacts of food products at the point of purchase, making it unlikely that consumers generally reflect on the environmental impacts of their consumption choices at the retail shelf or in restaurants (Visschers & Siegrist, 2015). With a rise in environmental and social concerns related to food consumption (World Wildlife Fund, 2014), assessing the impacts of a sustainability label that conveys an aggregate sustainability score is a timely and urgent issue for a product prior to it entering into the marketplace. As such, this study examined sustainability labels that quantify the overall environmental impacts of products in a simple and concise format.

While prior studies examine the effects of environmental information on either healthy or unhealthy food products alone, or on both healthy and unhealthy food combined in a meal (Grunert et al., 2014), there is much yet to be examined regarding the effects of sustainability labels that present quantitative information that measures environmental impact. To fill this gap in the sustainability labels literature, the current research investigates healthy and unhealthy food products separately. It uses different levels of sustainability scores to better detangle the complex relationship between healthiness and sustainability information.

Findings from this research suggest that labels which contain both the sustainability level, or score, and the relevant environmental dimensions for product categories may be an effective tool for communicating sustainability initiatives. Prior research also suggests that consumer familiarity with environmental information varies across product categories (Bernard, Bertrandias, & Elgaaied-Gambier, 2015). Based on the results in this research regarding the underlying process of perceived label fit on consumer decisions, it seems important to provide scores that are consistent with consumer perceptions of the product.

Alleviating consumers' confusion about food labels can become even more challenging given the match-up effect between the healthiness of foods and their sustainability levels. When making food choices, the environmental impact of consumers' purchases is unlikely to be a top concern (Grunert et al., 2014). By capitalizing on the healthiness of foods with high sustainability levels, consumers may be more likely to attend to the sustainability labels. Specifically, Study 1 provides initial support for the match-up hypothesis between healthiness and sustainability levels and its impact on purchase intentions. Turning more specifically to sustainability labeling, the findings from Study 2 suggest that healthy food products are evaluated to have a higher level of perceived label fit if paired with a high sustainability level as compared to unhealthy food. In contrast, unhealthy food products were evaluated to have a higher level of perceived label fit if paired with a low sustainability level as compared to healthy food. In Study 3, the effects of sustainability labels were mitigated for consumers with high levels of sustainability skepticism. This may be partly due to highly skeptical consumers' low levels of belief in sustainability information (Mohr, Eroğlu, & Ellen, 1998) and inefficacy of any sustainability communication tool in general (Kim & Lee, 2009).

6.1. Theoretical contributions

This research contributes to the ample literature on the relationship between healthiness and sustainability. Building on consumers' lay beliefs and heuristics in information processing, the findings provide not only additional support for the positive relationship between healthiness and sustainability, but also behavioral intention measures that predict consumers' responses. Specifically, the lay beliefs of consumers suggest that healthy food is perceived to be sustainable, whereas unhealthy food is perceived to be less sustainable, leading to the formation of biased perceptions. The tendency to categorize food as either healthy or unhealthy also makes it challenging for consumers to accurately process sustainability labels. To further demonstrate the complex nature of the sustainability information processing on foods, the interaction effects between healthiness and sustainability levels require a more comprehensive understanding. The pattern of findings indicates that healthy food with a high sustainability level is evaluated more favorably; likewise, unhealthy food with a low sustainability level is also evaluated more favorably.

Consistent with the match-up hypothesis and the literature on perceived label fit, the extent of fit between healthiness and sustainability levels seems essential for an understanding of the underlying process of associating healthier food with higher sustainability levels. The findings generally suggest that the higher the degree of perceived label fit, the more favorable the product evaluations will be. The match between healthiness and sustainability level may determine the efficacy of sustainability labels. Lastly, the level of sustainability skepticism may determine which consumers respond to the labels.

We also show how the interaction between health and sustainability affects purchase intentions. In particular, we show how the interaction between health and sustainability affects perceived label fit, which then affects purchase intentions. In addition, we show how this effect can be moderated by an individual's sustainability skepticism.

6.2. Implications for consumer welfare

This pattern of results should be of interest to practitioners, governmental agencies, and non-governmental organizations focused on sustainability (e.g., GreenCircle Certified, 2014; United Nations Educational, Scientific, and Cultural Organization, 2005). These consumer welfare groups are critical agents in promoting sustainable consumption behaviors across consumers, businesses, and society at large encouraging positive, long-lasting change. Consistent with the ongoing pilot tests conducted by governmental agencies and industries (e.g., Sustainability Consortium (2018); Walmart's Sustainability Score Card), a provision of measurable environmental impacts using a scoring scheme may offer a promising avenue for the development of an effective communication tool. Sustainability labels can differentiate between companies in the marketplace and empower consumers towards environment-friendly behaviors by making environmental impact information transparent.

To avoid the negative consequences arising from consumers' lay beliefs and the match-up effect, public policy makers need to focus on educating consumers about the misperception of healthy food always having a high sustainability level. Policy makers and practitioners may consider using an expected range of sustainability levels within the healthy food category or communicating that healthy food can have a wide range of sustainability levels. This can help increase the perceived label fit of healthy foods across the sustainability spectrum. This seems to be pivotal in encouraging consumers to eat healthier.

Perhaps, manufacturers of foods perceived as healthy need to strive to minimize their impacts on the environment, creating a competitive advantage in the consumer packaged goods industry. Foods that are perceived as less healthy may be more complex, for which a moderate level of environmental impact may be perceived to be reasonable. However, as consumers are provided with more sustainable options for unhealthy foods, their biased perception may be mitigated over time. There may be a shift in the reasonable range of sustainability levels for

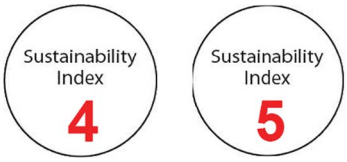
unhealthy foods, transforming the sustainability information in the marketplace. As such, manufacturers, non-governmental organizations, and policy makers need to carefully consider the matching effect to account for potential misperceptions and biases that may lead to negative consequences. That being said, changing the production processes of healthy products to minimize environmental impact may be slow and difficult and could end up imposing a significant monetary cost on the company. In the absence of changes in production, this research suggests that the potential for greenwashing also exists, where companies might embellish their sustainability credentials and game their sustainability labels in order to increase consumer purchase intentions.

6.3. Limitations and future research

To enhance the generalization of the effectiveness of sustainability labels, this paper used two different label formats, one version with both dimensions of sustainability and sustainability level and another version with a quantitative sustainability level only. These formats can be tested against each other to reveal potential differences between quantitative and non-quantitative labels in order to determine which type of label may be more effective for future studies. While we utilized sustainability labels that are provided by retailers voluntarily and so are consistent with the current marketplace, it may be important to consider how the source of sustainability labels, whether from a third-party or a manufacturer, might influence consumers differently. Additionally, while we utilized a behavioral laboratory and online settings to enhance the generalizability of our findings, examining the effect of sustainability information in more realistic settings will be beneficial. Furthermore, it is questionable whether consumers consider all dimensional information when evaluating the product. For instance, for a water bottle, is material efficiency the most important aspect of sustainability because of the recyclable content, hence influencing overall evaluation? Another avenue for research is to examine consumers' intuitions of unhealthy = tasty (Raghunathan et al., 2006) and healthy = eat more (Bui, Tangari, & Haws, 2017) within the context of food packaging and sustainability. For instance, prior research suggests that, because of this strong intuition, the provision of health and nutrition claims is ineffective in influencing consumer evaluations (Choi & Springston, 2014).

Information about the environmental impacts of food products, information that can be obtained at the point of purchase, offers the potential for long-term benefits and a more sustainable future. Despite possible limitations, the present research reveals that sustainability labels that quantify the aggregated environmental impacts influence product evaluations. These findings are important for consumer packaged goods companies, non-governmental organizations, and public policy makers, as well as for other advocates for environmental protection and sustainable development.

Appendix A



Appendix B

Appendix C

References

Aaker, D. A., & Keller, K. L. (1990). Consumer evaluations of brand extensions. *Journal of Marketing,* 27–41.

Adams, L., & Geuens, M. (2007). Healthy or unhealthy slogans: That's the question. *Journal of Health Communication, 12*(2), 173–185.

Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions.* Sage.

Alcañiz, E. B., Cáceres, R. C., & Pérez, R. C. (2010). Alliances between brands and social causes: The influence of company credibility on social responsibility image. *Journal of Business Ethics, 96*(2), 169–186.

Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. *American Psychologist, 54*(7), 462.

Baskin, E., Gorlin, M., Chance, Z., Novemsky, N., Dhar, R., Huskey, K., & Hatzis, M. (2016). Proximity of snacks to beverages increases food consumption in the workplace: A field study. *Appetite, 103*, 244–248.

Bernard, Y., Bertrandias, L., & Elgaaied-Gambier, L. (2015). Shoppers' grocery choices in the presence of generalized eco-labelling. *International Journal of Retail & Distribution Management, 43*(4/5), 448–468.

Broniarczyk, S. M., & Alba, J. W. (1994). The importance of the brand in brand extension. *Journal of Marketing Research,* 214–228.

Bui, M. M., Tangari, A. H., & Haws, K. L. (2017). Can health "halos" extend to food packaging? An investigation into food healthfulness perceptions and serving sizes on consumption decisions. *Journal of Business Research, 75*, 221–228.

Cardozo, R. N. (1965). An experimental study of customer effort, expectation, and satisfaction. *Journal of Marketing Research,* 244–249.

Carlsson-Kanyama, A. (1998). Climate change and dietary choices—How can emissions of greenhouse gases from food consumption be reduced? *Food Policy, 23*(3), 277–293.

Carrillo, E., Varela, P., & Fiszman, S. (2012). Effects of food package information and sensory characteristics on the perception of healthiness and the acceptability of enriched biscuits. *Food Research International, 48*(1), 209–216.

Cho, Y. N. (2015). Different shades of green consciousness: The interplay of sustainability labeling and environmental impact on product evaluations. *Journal of Business Ethics, 128*(1), 73–82.

Cho Y.N., Soster R.L. and Burton S., Enhancing environmentally conscious consumption through standardized sustainability information, Journal of Consumer Affairs, Forthcoming.

Choi, H., Paek, H. J., & Whitehill King, K. (2012). Are nutrient-content claims always effective? Match-up effects between product type and claim type in food advertising. *International Journal of Advertising, 31*(2), 421–443.

Choi, H., & Springston, J. K. (2014). How to use health and nutrition-related claims correctly on food advertising: Comparison of benefit-seeking, risk-avoidance, and taste appeals on different food categories. *Journal of Health Communication, 19*(9), 1047–1063.

Cone Communications (2015). Cone communications/ebiquity global CSR study. Retrieved from http://www.conecomm.com/stuff/contentmgr/files/0/2482ff6f22fe4753488d3fe37e948e3d/files/global_pdf_2015.pdf.

Consumer Reports National Research Center (2014). Food labels survey. Retrieved from http://www.greenerchoices.org/pdf/ConsumerReportsFoodLabelingSurveyJune2014.pdf.

Cox, R. W. (2011). OPEN IO: Developing a transparent, fully accessible economic inout-output life cycle assessment. Retrieved from http://www.sustainabilityconsortium.org/wp-content/themes/sustainability/assets/pdf/OpenIO_ModelDocumentation_June2011.pdf.

Crofton, E. C., Markey, A., & Scannell, A. G. (2013). Consumers' expectations and needs towards healthy cereal based snacks: An exploratory study among Irish adults. *British Food Journal, 115*(8), 1130–1148.

Dens, N., & De Pelsmacker, P. (2010). Attitudes toward the extension and parent brand in response to extension advertising. *Journal of Business Research, 63*(11), 1237–1244.

Engels, S. V., Hansmann, R., & Scholz, R. W. (2010). Toward a sustainability label for food products: An analysis of experts' and consumers' acceptance. *Ecology of Food and Nutrition, 49*(1), 30–60.

Forehand, M. R., & Grier, S. (2003). When is honesty the best policy? The effect of stated company intent on consumer skepticism. *Journal of Consumer Psychology, 13*(3), 349–356.

Forkan, J. (1980). Product matchup key to effective star presentations. *Advertising Age, 51*(6), 42.

Frederick, S., Lee, L., & Baskin, E. (2014). The limits of attraction. *Journal of Marketing Research, 51*(4), 487–507.

GoodGuide (2018). Popular product reviews: Safety, health, and green ratings. Retrieved from https://www.goodguide.com.

Gorissen, K., & Weijters, B. (2016). The negative footprint illusion: Perceptual bias in sustainable food consumption. *Journal of Environmental Psychology, 45*, 50–65.

GreenCircle Certified, L. L. C. (2014). Emerging market developments in 2014: Success through sustainability. Retrieved from http://greencirclecertified.com/PDF/2014%20Trends%20-%20Final.pdf.

Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. *Food Policy, 44*, 177–189.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based*.

Hoyer, W. D. (1984). An examination of consumer decision making for a common repeat purchase product. *Journal of Consumer Research, 11*(3), 822–829.

Janiszewski, C., & Lichtenstein, D. R. (1999). A range theory account of price perception. *Journal of Consumer Research, 25*(4), 353–368.

Jungbluth, N., Tietje, O., & Scholz, R. W. (2000). Food purchases: Impacts from the consumers' point of view investigated with a modular LCA. *The International Journal of Life Cycle Assessment, 5*(3), 134–142.

Kahle, L. R., & Homer, P. M. (1985). Physical attractiveness of the celebrity endorser: A social adaptation perspective. *Journal of Consumer Research, 11*(4), 954–961.

Kamins, M. A. (1990). An investigation into the "match-up" hypothesis in celebrity advertising: When beauty may be only skin deep. *Journal of Advertising, 19*(1), 4–13.

Kang, Y. S., & Herr, P. M. (2006). Beauty and the beholder: Toward an integrative model of communication source effects. *Journal of Consumer Research, 33*(1), 123–130.

Kangun, N., Carlson, L., & Grove, S. J. (1991). Environmental advertising claims: A preliminary investigation. *Journal of Public Policy & Marketing,* 47–58.

Kareklas, I., Carlson, J. R., & Muehling, D. D. (2014). "I eat organic for my benefit and yours": Egoistic and altruistic considerations for purchasing organic food and their implications for advertising strategists. *Journal of Advertising, 43*(1), 18–32.

Kim, Y. J., & Lee, W. N. (2009). Overcoming consumer skepticism in cause-related marketing: The effects of corporate social responsibility and donation size claim objectivity. *Journal of Promotion Management, 15*(4), 465–483.

Knoll, J., & Matthes, J. (2017). The effectiveness of celebrity endorsements: A meta-analysis. *Journal of the Academy of Marketing Science, 45*(1), 55–75.

Kozup, J. C., Creyer, E. H., & Burton, S. (2003). Making healthful food choices: The influence of health claims and nutrition information on consumers' evaluations of packaged food products and restaurant menu items. *Journal of Marketing, 67*(2), 19–34.

Lavine, H., & Snyder, M. (1996). Cognitive processing and the functional matching effect in persuasion: The mediating role of subjective perceptions of message quality. *Journal of Experimental Social Psychology, 32*(6), 580–604.

Leary, R. B., Vann, R. J., & Mittelstaedt, J. D. (2017). Leading the way: Motivating environmental action through perceived marketplace influence. *Journal of Business Research, 79*, 79–89.

Lynch, J., & Schuler, D. (1994). The matchup effect of spokesperson and product congruency: A schema theory interpretation. *Psychology and Marketing, 11*(5), 417–445.

Misra, S., & Beatty, S. E. (1990). Celebrity spokesperson and brand congruence: An assessment of recall and affect. *Journal of Business Research, 21*(2), 159–173.

Mohr, L. A., Eroğlu, D., & Ellen, P. S. (1998). The development and testing of a measure of skepticism toward environmental claims in marketers' communications. *Journal of Consumer Affairs, 32*(1), 30–55.

Obermiller, C., Spangenberg, E., & MacLachlan, D. L. (2005). Ad skepticism: The consequences of disbelief. *Journal of Advertising, 34*(3), 7–17.

Obermiller, C., & Spangenberg, E. R. (1998). Development of a scale to measure consumer skepticism toward advertising. *Journal of Consumer Psychology, 7*(2), 159–186.

Pracejus, J. W., & Olsen, G. D. (2004). The role of brand/cause fit in the effectiveness of cause-related marketing campaigns. *Journal of Business Research, 57*(6), 635–640.

Raghunathan, R., Naylor, R. W., & Hoyer, W. D. (2006). The unhealthy—Tasty intuition and its effects on taste inferences, enjoyment, and choice of food products. *Journal of Marketing, 70*(4), 170–184.

Roehm, M. L., & Roehm, H. A. (2014). Consumer responses to parodic ads. *Journal of Consumer Psychology, 24*(1), 18–33.

Roininen, K., Tuorila, H., Zandstra, E. H., De Graaf, C., Vehkalahti, K., Stubenitsky, K., & Mela, D. J. (2001). Differences in health and taste attitudes and reported behaviour among Finnish, Dutch and British consumers: A cross-national validation of the Health and Taste Attitude Scales (HTAS). *Appetite, 37*(1), 33–45.

Rossiter, J. R., & Percy, L. (1980). Attitude change through visual imagery in advertising. *Journal of Advertising, 9*(2), 10–16.

Rozin, P., Ashmore, M., & Markwith, M. (1996). Lay American conceptions of nutrition: Dose insensitivity, categorical thinking, contagion, and the monotonic mind. *Health Psychology, 15*(6), 438.

Sen, S., & Bhattacharya, C. B. (2001). Does doing good always lead to doing better? Consumer reactions to corporate social responsibility. *Journal of Marketing Research, 38*(2), 225–243.

Simmons, C. J., & Becker-Olsen, K. L. (2006). Achieving marketing objectives through social sponsorships. *Journal of Marketing, 70*(4), 154–169.

Smith, D. C., & Andrews, J. (1995). Rethinking the effect of perceived fit on customers' evaluations of new products. *Journal of the Academy of Marketing Science, 23*(1), 4.

Sustainability Consortium (2018). Retrieved from http://sustainabilityconsortium.org.

Tversky, A., & Kahneman, D. (1974). Heuristics and biases: Judgement under uncertainty. *Science, 185*, 1124–1130.

United Nations Educational, Scientific, and Cultural Organization (2005). United Nations decade of education for sustainable development (2005–2014). Retrieved from http://unesdoc.unesco.org/images/0013/001311/131163e.pdf.

Verain, M. C., Sijtsema, S. J., & Antonides, G. (2016). Consumer segmentation based on food-category attribute importance: The relation with healthiness and sustainability perceptions. *Food Quality and Preference, 48*, 99–106.

Visschers, V. H., & Siegrist, M. (2015). Does better for the environment mean less tasty? Offering more climate-friendly meals is good for the environment and customer satisfaction. *Appetite, 95*, 475–483.

World Wildlife Fund (2014). Living planet report: Species and spaces, people and places. Retrieved from http://wwf.panda.org/about_our_earth/all_publications/living_planet_report.

Yoon-Na Cho is the Lisa D'Alessandro '87 Assistant Professor in the Department of Marketing and Business Law at the Villanova School of Business at Villanova University, Villanova, PA (yoon-na.cho@villanova.edu; 610.519.4163).

Ernest Baskin is Assistant Professor in the Department of Food Marketing at the Haub School of Business at Saint Joseph's University, Philadelphia, PA (ebaskin@sju.edu).