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Christy Ashley

*University of Rhode Island*, [christyashley@uri.edu](mailto:christyashley@uri.edu)

Jason D. Oliver

*East Carolina University*, [oliverj@ecu.edu](mailto:oliverj@ecu.edu)

James E. Zemanek

*East Carolina University*, [zemanekj@ecu.edu](mailto:zemanekj@ecu.edu)

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# Trial-Attitude Formation in Green Product Evaluations

Christy Ashley, The University of Rhode Island

ChristyAshley@uri.edu

Jason D. Oliver, East Carolina University

James E. Zemanek, East Carolina University

**Abstract** - How do merchandising and trial affect consumer responses to green products? To respond to this question, the authors use expectancy-value theory as a conceptual framework and evaluate the product-trial attitude formation process for environmentally friendly products in an experimental study. The results show that addressing quality concerns and segmenting customers based on their environmental values may help increase adoption and positive word-of-mouth surrounding environmentally friendly products. Further, hands-on trials and exclusive communications and displays may help overcome explicit beliefs about poor green product quality and increase green product adoption intentions.

**Keywords** - Green marketing, Attitudes, Product Trial, Merchandising

**Relevance to Marketing Educators, Researchers and/or Practitioners** – Independent merchandising and hands-on trials may help overcome negative associations with green products. Otherwise, negative beliefs may decrease the diffusion of environmentally friendly products, especially among consumers with lower environmental values.

## Introduction

Environmentally friendly, or green, products are defined as products that minimize the environmental impact of their consumption (Janssen and Jager 2002). In spite of increased attention on environmental issues, many widely available sustainable products have not been widely adopted. One possible explanation is that knowledge

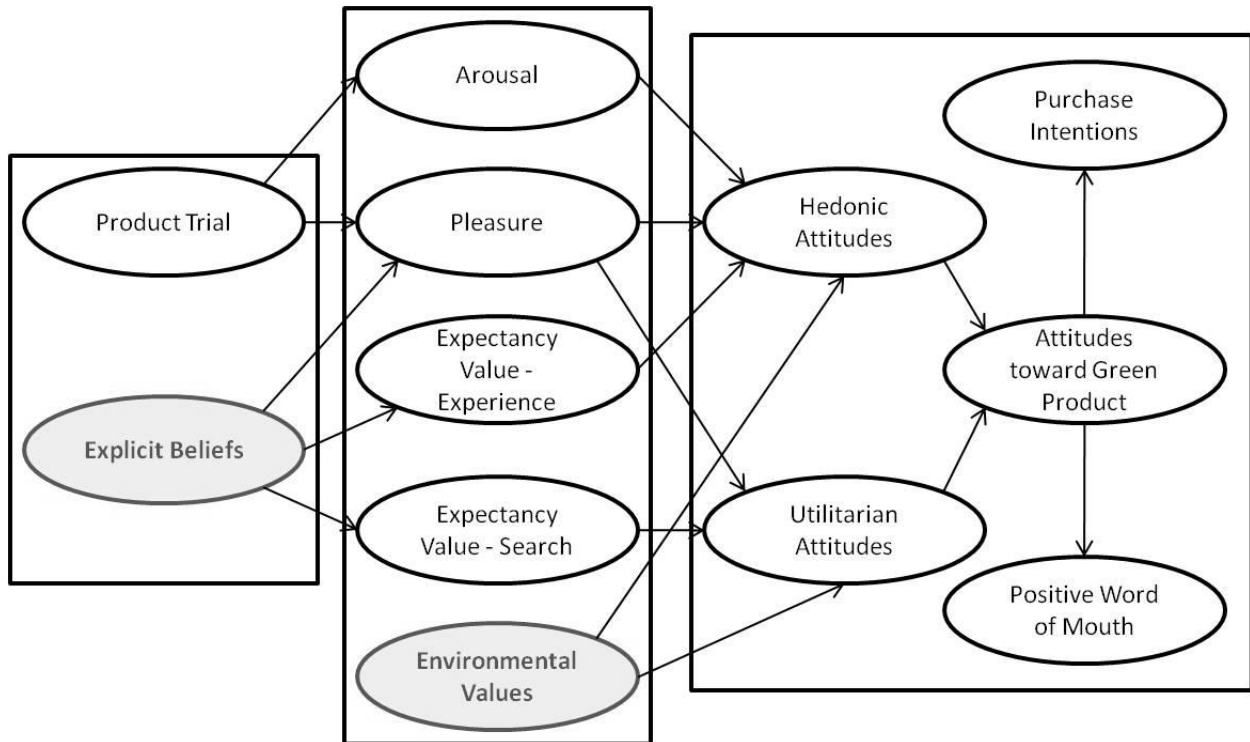
about environmental harm is a necessary but insufficient condition for action, leaving questions about how to surmount cultural barriers that inhibit widespread adoption of environmentally friendly products (Pelletier et al. 1999). Some consumers do not see green behaviors or green product choices as normal, while they perceive some of their more destructive consumption behaviors as normal and, thus, see no reason to change or buy green products (Rettie, Burchell, and Riley 2012). Another explanation is that aside from a small group of “green” consumers, many consumers avoid green products because they believe the products offer inferior quality at a higher price (Peattie 2001; Davari and Strutton 2014). Other research suggests consumers are ambivalent toward green products, meaning they simultaneously have both positive and negative evaluations about green products (Chang 2011).

Increased quality and availability of green products has not helped change these attitudes (Melillo and Miller 2006). However, there is evidence that green marketing can help improve firm performance (Leonidou, Katsikeas, and Morgan 2012). This raises questions about ways to communicate the quality of environmentally friendly products and about the role of the environmentally friendly attributes in the attitude formation process. The market could benefit from an increased understanding of how green product trial and communications about green products might affect the formation of attitudes toward green products. It is also not clear how environmental friendliness affects the trial-attitude formation process for green products.

Specifically, a marketer who is introducing an environmentally friendly version of an existing product would be interested in learning which channels of communication to use to promote the product and which distribution channels to use to sell the product. For example, the marketer could distribute the product through online and/or offline retail channels that sell less environmentally friendly versions of the product. Alternatively, the marketer could use direct mail or develop a website for direct distribution of the product, or use an offline channel that allowed for the product to be featured independently. The independent display may be enabled through an arrangement with a retailer for a dedicated display (e.g. a freestanding fixture or an end-cap display) or through a direct selling context (e.g. demonstrations). The best channel and merchandising approach would depend on the answers to several questions, two of which included: (1) Would it affect consumer attitudes toward the product if the product was shown alongside less environmentally friendly options vs. in isolation? (2) Would it affect consumer attitudes toward the product if consumers were given the opportunity to see, touch, and experience the green product?

To contribute more generally to theory that is relevant to green product marketing, the authors also attempt to understand the process behind the answer to the question about the role of product trial as it pertains to green product attitude formation. A model was developed based on the existing literature on the trial-attitude formation process. The authors extended the model by separating the effects of expectancy values for experience and search attributes on hedonic and utilitarian attitudes, respectively. In addition, the existing model was extended to increase the

variance explained in the attitude formation process for green products by including the proposed effects of (a) explicit beliefs that green products have inferior quality and (b) the consumer's enduring environmental values (shaded in the figure) in the existing model of the evaluation process (Figure 1). The bases for each of the hypothesized relationships are explained in the next section.



**Figure 1: Trial-Attitude Formation Model for Green Products**

The study contributes to the existing literature in the following ways: First, it demonstrates product trial can affect emotional responses to green products. Second, it accounts for the negative role of explicit quality beliefs about green products on both search attribute evaluations and pleasure, which affect utilitarian and hedonic attitudes, respectively. Third, it demonstrates enduring environmental values positively affect both utilitarian and hedonic attitudes toward green products, which ultimately translates to increased positive word of mouth and purchase intentions. To accomplish this, the paper proceeds with the hypotheses development, reports the results of an experimental study, and ends with a discussion of the results, future directions, and conclusions.

# Hypotheses Development

## Emotions and Attitudes

The first part of the model reflects findings from the existing literature on product trial in attitude formation. Previous research on product trial indicates that experience with the brand can change both affective and cognitive responses to the product (Kempf and Smith 1998; Kim and Morris 2007). For example, Kempf (1999) demonstrated that product trial affected pleasure and arousal (affective response) and the expectancy value of brand attributes (the sum of the product of brand beliefs, confidence and beliefs and attribute evaluations for all attributes, a cognitive response). The effect of the affective and cognitive responses depends on the type of product, but product trial has been shown to be stronger than advertising in confidence in brand beliefs/attitudes (Smith and Swinyard 1982).

Kempf (1999) discovered product trial had a significant effect on pleasure and arousal in her experiments. The collective literature suggests the emotions that can be triggered by product trial matter in product evaluation. Batra and Ahtola (1990) suggest the experiential, affective response to product usage is an important factor in consumer purchase behavior. Kempf and Smith (1998) discovered emotions experienced during and after product trial affect brand evaluations. More recently, Kim and Morris (2007) found that the affective responses overrode cognitive structure under experimental conditions in forming product-trial attitudes.

Of the available emotions, the authors focused on arousal and pleasure. Mano and Oliver (1993) advocated using two dimensions to measure emotional responses to consumption experiences: pleasure and arousal. Havlena and Holbrook (1986) also identified arousal and pleasure as the most relevant major components of emotions in a trial context. As a result of the role established for these two emotions in previous inquiries, Kempf (1999) and Kempf and Smith (1998) modeled the role of these two emotions in product evaluations. Therefore, the hypothesis focuses on how trial affects each of these two emotional responses in an attempt to replicate the effect in Kempf (1999), and predicts:

**H1:** Product trial can increase (a) pleasure and (b) arousal.

The effects of affective responses to trial can be linked to two distinct dimensions of consumer attitudes: hedonic and utilitarian (Voss, Spangenberg, and Grohmann 2003). Understanding the relationships between these two dimensions of attitudes can provide marketers with insights regarding whether to stress experiential attributes or functional attributes in their communication strategies. Although they did not differentiate between hedonic and utilitarian attitudes toward the products, Kempf and Smith (1998) found evidence that the hedonic nature of the product, or the fact that the product was consumed for affective/sensory gratification purposes, resulted in a stronger relationship between emotional responses and product attitudes. Kempf and Smith (1998) found arousal and pleasure affected experiential

evaluations, but only pleasure was a significant determinant of functional trial evaluations.

Both arousal and pleasure are expected to relate to hedonic attitudes because the emotions elicited are relevant to hedonic attitudes, which capture the affect-related aspects of attitudes (e.g. whether the product is fun and exciting). On the other hand, only pleasure is expected to be a determinant of utilitarian, or functional, attitudes that result from product trial. Pleasure captures the happiness and satisfaction related to product exposure, which may reflect the functional outcomes of the product's use. Therefore, these relationships are tested in the context of green product evaluations. The authors suggest that while both pleasure and arousal have positive relationships with hedonic attitudes, only pleasure has a positive relationship with utilitarian attitudes.

**H2:** Pleasure and arousal have positive relationships with hedonic attitudes toward the product.

**H3:** Pleasure has a positive relationship with utilitarian attitudes toward the product.

### **Explicit Beliefs**

Explicit beliefs are generally defined as logically related beliefs that the consumer is aware of, which can cause resistance to persuasion. Explicit beliefs are particularly relevant in the context of green products because consumers often perceive green products to be inferior to their non-green alternatives (Lin and Chang 2012), which suggests they are likely to have negative explicit beliefs toward green products. Explicit beliefs about certain types of products have been shown to affect product evaluations. For example, Raghunathan, Naylor, and Hoyer (2006) found that explicit beliefs that unhealthy food tastes better affected evaluations, even following direct sensory experience with food. LeClerc, Schmitt, and Dube (1994) found perceptions regarding country of origin affected attitudes and evaluations of hedonism, even when direct sensory experience was involved.

The objective in the current study is to examine role of similar, subtle factor in green product evaluations – green products are perceived to have poorer performance. There may be an explicit belief that there is an inverse relationship between things that are good for the environment and things that are enjoyable or perform well. As determined by Goering (1985), even if the consumer tries the product, it may not correct for the explicit belief because consumer evaluations following trial depend on consumer expectations of quality.

The literature suggests explicit beliefs can affect the attitude formation in three ways. Fishbein and Ajzen (1975) define expectancy value of an attribute as the importance of the attribute multiplied by its belief. The sum of these weighted beliefs gives an attitude score. The model was later updated to include confidence in the

beliefs (e.g. Kempf 1999). Just as Kempf and Smith (1998) differentiated expectancy value from experiential attributes and non-experiential attributes, the authors separate the expectancy value of search attributes (non-experiential) from the expectancy value of experience attributes (experiential). Nelson (1974) identified search properties as attributes a consumer can determine prior to purchase (color, style, price) and experience properties as attributes that could only be discerned after purchase (taste, wearability, dependability). This conceptualization was also applied by Batra and Sinha (2000, p. 179), who suggest that search attributes “can be verified before purchase through direct inspection or through readily accessible sources such as color or ingredient content” while “experience attributes can be verified only by using the product (e.g. taste).”

Explicit beliefs are expected to affect evaluations of green products via two different paths. Explicit beliefs that green products perform poorly will have negative relationships with both types of expectancy value, or the cognitive evaluations of the product. Explicit beliefs that environmentally friendly products perform poorly will reduce pleasure in the evaluation process, an affective response.

**H4:** Explicit beliefs that environmentally friendly product perform poorly have a negative effect on (a) expectancy value of search attributes (b) expectancy value of experience attributes and (c) pleasure.

### **Expectancy Value and Hedonic/Utilitarian Attitudes**

Previous examinations of the relationships between the expectancy value of search and experience attributes has linked the attributes to overall product evaluations. However, Voss, Spangenberg, and Grohmann (2003) demonstrate that it is important to make distinctions between hedonic and utilitarian dimensions of attitudes. Both types of attitudes are important to retailers because previous research indicates that both utilitarian and hedonic dimensions of attitudes can affect whether a consumer engages in a shopping experience (Childers et al. 2001). In general, higher affective involvement predicts hedonic attitudes, while higher cognitive involvement predicts utilitarian attitudes (Chitturi, Raghunathan, and Mahajan 2007). Less is known about how the expectancy value of search and experience attributes relate to utilitarian and hedonic attitudes.

Existing research suggests hedonic and utilitarian benefits are perceived differently because they help the consumer reach different outcomes (e.g. Chitturi, Raghunathan, and Mahajan 2008). Search attributes are often facts that relate to the specific function of the product, which increases the likelihood that their evaluation will influence utilitarian attitudes. The experience attributes, which benefit from direct sensory exploration, are likely to align with hedonic attitudes, which commonly relate to aesthetics, enjoyment and experience.

Therefore, the authors predict that the expectancy value of the experience attributes will have a positive relationship with hedonic attitudes. In short, the authors hope to extend existing theory about the product trial-attitude formation process by demonstrating the expectancy value of search attributes has a positive

relationship with utilitarian attitudes toward the product, while the expectancy value of experience attributes has a positive relationship with the hedonic attitudes toward the product.

**H5:** Expectancy value of search attributes has a positive relationship with utilitarian attitudes toward the product.

**H6:** Expectancy value of experience attributes has a positive relationship with hedonic attitudes toward the product.

### **Environmental Values**

Previous research indicates that decisions involving values result in more anomalies than decisions based on more benign attributes. For example, Ehrich and Irwin's (2005) study of how consumers seek information about product attributes demonstrates that decisions consumers make about trading off on attribute shortcomings that go against protected values (e.g. the attribute harms the environment) are more difficult than decisions about other types of attributes. Consumers want to ignore information about attributes when the information might tell them something they do not want to know about. For example, consumers might avoid information that goes against their values, especially if the values are important.

Other research also indicates that environmental values can be powerful predictors of ecological behavior (Kaiser, Wolfing, and Fuhrer 1999). The authors operationalize environmental values in a way that is consistent with Banerjee and McKeage (1994), Alwitt and Pitts (1996) and Oliver and Rosen (2010) to show how these enduring values (vs. behaviors) affect attitudes following product trial. The authors predict environmental values will directly affect both hedonic and utilitarian attitudes toward environmentally friendly products. This is consistent with a multidisciplinary perspective that recognizes hedonic and utilitarian components of attitudes as two distinct components (Chitturi, Raghunathan, and Mahajan 2008). Environmental values should have a positive relationship with both hedonic attitudes toward green products because people who hold environmental values dear are expected to perceive higher enjoyment and aesthetic benefits from green products. They are also predicted to have a greater appreciation for the functional benefits associated with green consumption offerings, increasing their utilitarian attitudes. More formally:

**H7:** Environmental values have positive relationships with (a) hedonic and (b) utilitarian attitudes toward environmentally friendly products.

Hedonic and utilitarian attitudes are expected to have positive relationships with overall attitude toward the green product, which, in turn, has positive relationships with purchase intentions and positive word of mouth (e.g. Alwitt and Pitts 1996; Brown et al. 2005). The authors aim to replicate these previous findings, hypothesized



as:

**H8:** Attitude toward the green product has a positive relationship with purchase intentions.

**H9:** Attitude toward the green product has a positive relationship with positive word-of-mouth.

Product class knowledge and product class involvement are included as covariates because both product class knowledge (Kempf and Laczniak 2001) and product class involvement (Fishbein and Ajzen 1975; Kim and Morris 2007) have been shown to offer explanatory value in predicting consumer responses to products.

## Methods

Solar LED stringlights were selected because they are considered a green product (they conserve traditional electricity by using solar panels for energy). A marketer had specific research questions about the effect of merchandising and distribution on attitudes toward the product, so he donated lights for the study, but did not fund the study. Stringlights were considered relevant to the target population but not familiar or routinely purchased, so exposure is likely to affect attitudes. In addition, the study was done during a time of year when many students might be considering the purchase of stringlights.

### Pre-test

Before the experiment, the authors conducted a pre-test to equate the information available from the informational content of direct experience and advertising. Respondents from two upper level marketing courses tried the solar-powered LED lights, electronically powered LED lights, and traditional incandescent lights in the presence of point-of-purchase information and were asked to freely generate written cognitive responses and lists of the attributes important to brand choice. The most frequently mentioned responses in these listings were used to generate full-color flyers claiming those attributes.

The pictures were taken from websites that promoted the same holiday lights. The copy was formatted to look like the copy on the website to in an attempt to create a realistic representation of the product in the experimental setting. Attributes mentioned frequently included easy to handle/install, produced bright colors, produces high quality light, durability, significant savings on energy bills, environmentally friendly, indoor/outdoor use and easy to maintain. The copy from the full-color flyers used in the main experiment is shown in Figure 2. Each type of lights was shown visually on a separate flyer.

### Procedure

The authors collected responses from 160 undergraduates who participated in groups of between one and four in exchange for extra credit in an introductory marketing course. After each participant registered and signed an informed consent form, they

were told that the study involved evaluation of a new product, which is going to be test-marketed in the school’s state. They were told their task was to evaluate the product. The study used a 2 (comparison, no comparison) x 2 (information only, information and trial) factorial design, so respondents were randomly assigned to one of four conditions when they checked in. All 160 participants completed the tasks and are considered in the analysis.

In the first condition, respondents viewed three full color flyers which included a picture of the product and the copy in Figure 2. Respondents saw descriptions of a string of traditional holiday lights, a string of LED holiday lights, and a string of solar powered LED holiday lights, along with relevant attribute information about each type of lights from the pre-test. The condition simulated how the product might appear in a catalog or on a website. In a second condition, respondents viewed the description of the solar powered LED holiday lights in isolation. This condition simulated what a customer might experience on a dedicated website or direct mail flyer. In the third condition, respondents experienced the three products (e.g. a string of traditional stringlights, a string of LED stringlights, and a string of solar powered LED stringlights; all were lit up) along with the full color information flyers for each product. Participants were given the opportunity to see, touch, and experience the lights. The third condition simulated an aisle in a traditional retail environment where the products were on display. In a fourth condition, respondents experienced the solar powered LED stringlights and flyer in isolation. This condition simulated a dedicated end cap display or product demonstration.

<b><i>Solar LED Stringlights</i></b>	<b><i>LED Stringlights</i></b>	<b><i>Incandescent Stringlights</i></b>
<ul style="list-style-type: none"> <li>• <i>No Bills. No Plugs.</i></li> <li>• <i>18-foot string length.</i></li> <li>• <i>Easy to Hang.</i></li> <li>• <i>Maintenance Free.</i></li> <li>• <i>Automatically Turns On at Night. Oversized Solar Collectors.</i></li> <li>• <i>No Wiring, Instant Installation.</i></li> <li>• <i>Multi Positioning, Fully Articulated.</i></li> <li>• <i>Indoor/Outdoor.</i></li> <li>• <i>1 year Warranty.</i></li> <li>• <i>Environmentally Friendly.</i></li> </ul> <p><i>Available Colors: White, Blue, Green, Red, Orange, Multi-Color</i></p> <p>Package includes: Light</p>	<ul style="list-style-type: none"> <li>• <i>Lower Bills.</i></li> <li>• <i>18-foot string length.</i></li> <li>• <i>Easy to Hang.</i></li> <li>• <i>Low Maintenance.</i></li> <li>• <i>Easy Installation.</i></li> <li>• <i>Multi Positioning, Fully Articulated.</i></li> <li>• <i>Indoor/Outdoor.</i></li> <li>• <i>1 year Warranty.</i></li> <li>• <i>Environmentally Friendly.</i></li> </ul> <p><i>Available Colors: White, Blue, Green, Red, Orange, Multi-Color</i></p> <p>Package includes: Light</p>	<ul style="list-style-type: none"> <li>• <i>Inexpensive - \$12.</i></li> <li>• <i>18-foot string length.</i></li> <li>• <i>Easy to Hang.</i></li> <li>• <i>3,000 Hours</i></li> <li>• <i>2.5 Volts</i></li> <li>• <i>Replaceable fuses.</i></li> <li>• <i>Easy Installation.</i></li> <li>• <i>Multi Positioning, Fully Articulated.</i></li> <li>• <i>Indoor/Outdoor.</i></li> <li>• <i>1 year Warranty.</i></li> </ul> <p><i>Available Colors: White, Blue, Green, Red, Orange, Multi-Color</i></p> <p>Package includes: Light string</p>

string, Solar Panel, Stake, Stake tip, Connector	string, Connector	
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**Figure 2: Stimulus Copy**

Following the 90 second timed exposure to one or more products/information about one or more products (depending on the experimental condition), respondents were asked to respond to measures using a paper and pencil questionnaire in another room. The questionnaire used scales to measure the independent and dependent variables and potential covariates. These scale items are discussed in the next section.

### Measures

Participants completed a series of measures about the solar-powered LED stringlights on scales that ranged from 1 (strongly disagree) to 7 (strongly agree). The measures included purchase intentions (4 items, Stafford 1998); word of mouth (3 items, Price and Arnould 1999); environmental values (7 items, Oliver and Rosen 2010); and explicit beliefs about environmentally friendly product performance (3 items adapted from Raghunathan, Naylor and Hoyer 2006). The respondents completed a series of 7 point semantic differential items for the following constructs: pleasure (3 items, Mehrabian and Russell 1974); arousal (3 items, Mehrabian and Russell 1974); utilitarian attitude (5 items, Voss, Spangenberg, and Grohmann 2003); hedonic attitude (5 items, Voss, Spangenberg, and Grohmann 2003); and attitude toward the product (4 items, Kempf 1999). The respondents completed Fishbein and Ajzen's (1975) scale of the expectancy value of eight different attributes that were identified in the pre-test. The respondents also completed a series of measures on 7 point scales for two covariates: product class involvement (3 items, De Wulf, Odekerken-Schroder, and Iacobucci 2001); product class knowledge (3 items, Mukherjee and Hoyer 2001). Finally, respondents were asked to include their genders and their ages and to respond to a question that asked them about the purpose of the study.

### Results

The specific items that were used in the analyses, their loadings, means, standard deviations and reliabilities are shown in Table 1. Discriminant validity statistics are shown in Table 2, where the square root of the average variance explained appears on the diagonal and the latent variable correlations appear on the off diagonals. Table 2 shows that none of the latent variable correlations exceed the square root of the AVE. The items used to capture each construct were averaged for the initial analyses.

**Table 1: Measures**

Construct	Items	Source	Loadings	M	s.d.	Composite Reliability
1. Hedonic Attitudes	The solar-powered LED lights are fun.	Voss,	0.8221	5.017	1.053	0.929
	The solar-powered LED lights are exciting.	Spangenberg,	0.9148			
	The solar-powered LED lights are delightful.	and	0.8796			
	The solar-powered LED lights are thrilling.	Grohmann	0.7991			
	The solar-powered LED lights are enjoyable.	2003	0.829			
2. Positive WOM	I would recommend solar-powered LED stringlights to someone who seeks my advice.	Price and Arnould	0.8922	5.812	0.961	0.941
	I would say positive things about solar-powered LED stringlights to other people.	1999	0.9185			
	I would recommend solar powered LED stringlights to others.		0.9397			
3. Product Attitudes	My attitude toward the solar LED stringlights is favorable	Kempf 1999	0.9321	5.845	0.888	0.934
	I like the solar LED stringlights.		0.9458			
	I think the solar LED stringlights are interesting.		0.8436			
4. Trial	(Yes/No)	n/a		n/a	n/a	n/a
5. Utilitarian Attitudes	I think that solar-powered LED lights are effective.	Voss,	0.8488	5.439	0.866	0.899
	I think that solar-powered LED lights are helpful.	Spangenberg,	0.8412			
	I think that solar-powered LED lights are functional.	and	0.8747			
	I think that solar-powered LED lights are practical.	Grohmann	0.7556			
6. Arousal	Excited - Calm	Mehrabian	0.8991	3.526	1.19	0.878
	Stimulated - Relaxed	and Russell	0.8359			
	Aroused - Unaroused	1974	0.7834			
7. Explicit Beliefs about Environmental Performance	Products that are better for the environment rarely perform well.	Adapted from	0.8739	5.319	1.011	0.916
	There is no way to make products better for the environment without sacrificing performance.	Raghunathan, Naylor, and	0.8791			
	Environmentally friendly versions of products do not work as well.	Hoyer 2006	0.9035			

Construct	Items	Source	Loadings	M	s.d.	Composite Reliability
8. Environmental Values	I buy environmentally friendly products frequently	Oliver and Rosen 2010	0.7796	4.511	1.17	0.929
	I often think about the harm we are doing to our environment		0.881			
	The whole environmental issue is very important to me		0.9107			
	I am a person who cares about the environment		0.8006			
	I think of myself as an environmentalist		0.792			
	I often worry about the effects of pollution on myself and my family		0.7944			
9. Expectancy Value - Experience Attributes	easy to handle/install (exp)	Fishbein and Ajzen 1975	0.7811	267.975	162.882	0.890
	produces bright colors (exp)		0.7819			
	produces high quality light (exp)		0.8578			
	durable (exp)		0.8515			
10. Gender	(Male/Female)			n/a	n/a	n/a
11. Involvement	Generally, my choice of stringlights is important to me.	adapted from De Wulf, Odekerken-Schroder, and Iacobucci 2001	0.959	4.046	1.228	0.954
	Generally, I am interested in my choice of stringlights.		0.9355			
	Generally, my choice of stringlights means a lot to me.		0.9098			
12. Pleasure	Happy - Unhappy	Mehrabian and Russell 1974	0.7748	5.73	0.715	0.873
	Pleased - Annoyed		0.8893			
	Satisfied - Dissatisfied		0.8366			
13. Purchase Intentions	If I needed stringlights I would actively seek out solar LED stringlights in a store to purchase them.	Stafford 1998	0.8744	5.391	1.148	0.921
	I would buy solar LED stringlights if I happened to see them in the store.		0.8009			
	If I needed stringlights, I would like to try solar LED stringlights.		0.8517			
	If I needed stringlights, I would buy solar powered LED stringlights.		0.9213			
14. Expectancy Value - Search Attributes	significant savings on energy bills (search)	Fishbein and Ajzen 1975	0.7345	395.894	180.211	0.883
	environmentally friendly (search)		0.8416			
	indoor/outdoor use (search)		0.834			
	easy to maintain (search)		0.8221			

**Table 2: Discriminant Validity**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Hedonic Attitudes	<b>0.850</b>													
2. Positive WOM	0.605	<b>0.917</b>												
3. Product Attitudes	0.713	0.768	<b>0.908</b>											
4. Trial (Yes/No)	0.143	0.188	0.107	<b>1.000</b>										
5. Utilitarian Attitudes	0.582	0.742	0.728	0.122	<b>0.831</b>									
6. Arousal	0.492	0.299	0.338	0.193	0.259	<b>0.841</b>								
7. Explicit Beliefs about Environmental Performance	-0.043	-0.193	-0.254	-0.069	-0.191	-0.083	<b>0.886</b>							
8. Environmental Values	0.274	0.249	0.291	-0.159	0.252	0.139	-0.169	<b>0.828</b>						
9. Expectancy Value - Experience Attributes	0.466	0.291	0.384	0.053	0.421	0.102	-0.154	0.031	<b>0.819</b>					
10. Gender (Male/Female)	0.152	0.266	0.165	0.157	0.157	0.073	-0.205	0.198	0.146	<b>1.000</b>				
11. Involvement	0.387	0.289	0.315	-0.047	0.296	0.172	0.118	0.043	0.243	0.029	<b>0.935</b>			
12. Pleasure	0.386	0.385	0.362	0.163	0.346	0.203	-0.214	0.205	0.231	0.223	0.119	<b>0.835</b>		
13. Purchase Intentions	0.557	0.714	0.698	0.065	0.605	0.247	-0.132	0.277	0.303	0.184	0.337	0.224	<b>0.863</b>	
14. Expectancy Value - Search Attributes	0.451	0.382	0.469	0.104	0.521	0.141	-0.252	0.097	0.757	0.234	0.254	0.237	0.371	<b>0.809</b>

\*Square Root of AVE in bold on the diagonal; Latent Variable Correlations on the Off Diagonal

## MANCOVA

First, open-ended responses were evaluated for potential demand effects. The participants did not guess the purpose of the study. Most inferred the authors were conducting a product test for a local manufacturer. Several thought the authors were seeing if they were paying attention because of the use of multiple items to measure the same construct. Therefore, the authors did not eliminate any respondents due to demand effects.

To respond to the research questions (how do trial and side by side comparisons affect evaluations of this green product), the authors compared the differences between the four cells in emotions (pleasure, arousal), expectancy values (search, experience), attitudes (hedonic, utilitarian, overall), purchase intentions, and word of mouth in a 2 (one product, three products) x 2 (no trial, trial) MANCOVA. Environmental values, explicit beliefs about environmental product performance, product class knowledge, and product class involvement were controlled for as covariates in this analysis.

The main effects of both manipulated variables (product presentation; product trial) were significant in the overall model. As expected, their interaction was not significant (Trial/No Trial Wilks' Lambda = 0.906,  $F(7, 146) = 2.171$ ,  $p = .04$ ; Single/Three Wilks' Lambda = 0.826,  $F(7, 146) = 4.428$ ,  $p < .001$ ). Explicit beliefs about environmental product performance ( $p = 0.042$ ), environmental values ( $p = .001$ ), and involvement ( $p < .001$ ) were significant covariates in the overall model, but product class knowledge was not ( $p > .10$ ). The F statistics and means for the individual ANOVAs are presented in Table 3.

**Table 3: Means for MANOVA/ANOVA results**

Measures	<i>ANOVA Results</i>						
	MANOVA F (7.146)	One Product (N = 40)	Three Products (N = 40)	F (1, 152)	No Trial	Trial	F (1, 152)
<b><i>Emotions</i></b>							
Pleasure	3.23**	5.74	5.72	0.03	5.61	5.85	4.72*
Arousal	3.76**	3.78	3.27	8.06**	3.28	3.77	7.27**
<b><i>Expectancy</i></b>							
<b><i>Values</i></b>							
Search Attributes	3.66***	411.1	380.7	1.23	374.9	417.0	2.34
Experience Attributes	2.97**	272.8	263.2	0.14	252.7	283.3	1.45
<b><i>Attitudes</i></b>							
Utilitarian Attitudes	6.39***	5.53	5.34	2.48	5.35	5.53	2.12
Hedonic Attitudes	6.45***	5.12	4.91	1.99	4.83	5.21	6.62*
Overall Attitudes	4.15***	5.90	5.79	0.63	5.67	6.02	6.67*
<b><i>Outcomes</i></b>							
Positive WOM	7.37***	5.96	5.66	4.73*	5.61	6.02	8.69**
Purchase Intentions	8.95***	5.74	5.04	19.02***	5.24	5.54	3.49

\*\*\* p < .001

\*\* p < .01

\* p < .05

Covariates appearing environmental performance beliefs M = 5.32, environmental values M = 4.51,



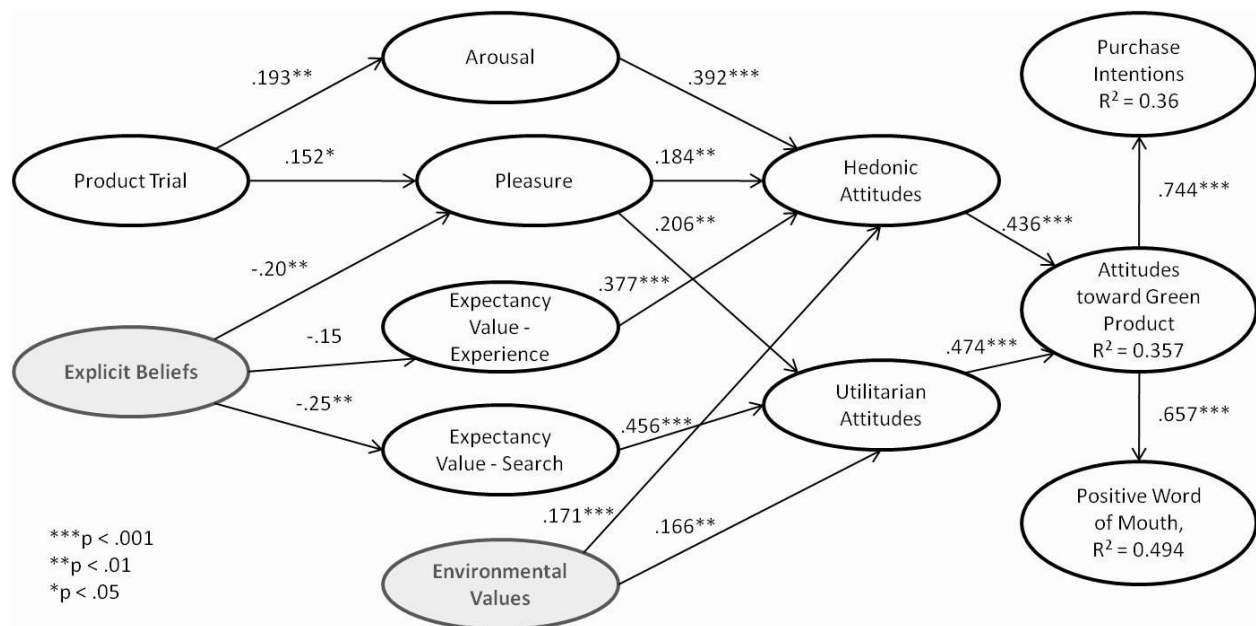
involvement M = 4.05, product knowledge= 3.85.

Product trial significantly improved pleasure ( $p < .05$ ) and arousal ( $p < .01$ ). Neither trial nor the number of products presented had a significant main effect on search or experience attributes or on utilitarian attitudes. Trial improved hedonic attitudes ( $p < .05$ ) with environmental values ( $p < .001$ ) and product class involvement ( $p < .001$ ) included as significant covariates. Trial also improved overall attitudes ( $p < .05$ ) with environmental values ( $p < .01$ ) as a significant covariate.

Seeing the solar LED stringlights independently (vs. seeing three products) had a significant effect on positive word of mouth ( $p < .05$ ). Product trial also had a significant positive effect on positive word of mouth ( $p < .01$ ). However, only product presentation ( $p < .001$ ) had a significant positive effect on purchase intentions. Significant covariates in the equations are shown in Table 3.

### Partial Least Squares Model

The hypotheses were tested in a Partial Least Squares (PLS) model, which relaxes assumptions regarding multicollinearity and controls for interrelationships between the constructs. It was considered more appropriate than SEM because of the small sample size (40 respondents per cell). The resulting paths are shown in Figure 3. With the exception of H4b, the hypotheses are supported. H4b, which suggests a negative relationship between explicit beliefs regarding green product quality and the expectancy value of experience attributes is marginally significant ( $p = 0.07$ ). The t-values that are associated with each path are shown in Table 4.



**Figure 3: PLS Path Model****Table 4: Path Model t-values for Hypothesis Testing**

<i>Hypothesized Relationship</i>	<i>t-value</i>	<i>significance</i>
H1a: Product trial → Pleasure	1.97	p < .05
H1b: Product trial → Arousal	2.379	p < .01
H2: Pleasure → Hedonic Attitudes	2.766	p < .001
H2: Arousal → Hedonic Attitudes	7.423	p < .001
H3: Pleasure → Utilitarian Attitudes	2.961	p < .01
H4a: Explicit Beliefs → Expectancy Search Value	2.769	p < .01
H4b: Explicit Beliefs → Expectancy Experience Value	1.505	p = 0.07
H4c: Explicit Beliefs → Pleasure	2.463	p < .01
H5: Expectancy Search Value → Utilitarian Attitudes	6.485	p < .001
H6: Expectancy Experience Value → Hedonic Attitudes	6.454	p < .001
H7a: Environmental Values → Hedonic Attitudes	3.193	p < .001
H7b: Environmental Values → Utilitarian Attitudes	2.806	p < .01
Hedonic Attitudes → Overall Attitude toward the Green Product	8.831	p < .001
Utilitarian Attitudes → Overall Attitude toward the Green Product	10.02	p < .001
H8: Overall Attitude → Purchase Intention	12.92	p < .001
H9: Overall Attitude → Positive Word of Mouth	19.03	p < .001

The model is consistent with the existing literature on the attitude-trial formation process. Product trial had a significant positive effect on the affective evaluations of the product. As predicted, pleasure had positive relationships with both hedonic and utilitarian attitudes, while arousal was positively related with utilitarian attitudes toward the green product. Hedonic and utilitarian attitudes were positively related to overall attitudes toward the green product, explaining 35.7% of the variance in the construct. Attitudes toward the green product were positively related to purchase intentions ( $R^2 = 0.36$ ) and explained a large portion of the variance in positive word of mouth ( $R^2 = 0.494$ ). The Goodness of Fit (GoF) for the overall model was 0.481, which indicates a good fit to the data (Kleijnen, de Ruyter, and Wetzels 2007).

The test contributes to the original model as, in line with predictions, the expectancy value of the experience attributes was positively related with hedonic attitudes, while the expectancy value of the search (non-experiential) attributes was positively related with utilitarian attitudes. Explicit beliefs that green products perform poorly were negatively related to the expectancy value of search attributes and pleasure, which in turn affected utilitarian and hedonic attitudes, respectively. Environmental values had significant, positive relationships with both hedonic and utilitarian attitudes.

## **Discussion**

The study provides support for the idea that experience attributes relate to hedonic attitudes while search attributes relate to utilitarian attitudes. In the context of green products, it provides support for the idea that explicit beliefs that environmentally friendly products do not perform as well have indirect, negative effects on hedonic and utilitarian attitudes, while environmental values have positive direct effects on hedonic and utilitarian attitudes.

The study also suggests green product marketers may benefit by displaying products where consumers can try them and from displaying product independently vs. alongside competitive products. This finding helps contribute to the literature regarding how displays affect product evaluations (see Ailawadi et al. 2009; Derochers and Nelson 2006). Displaying the product independently had a positive effect on arousal, positive word-of-mouth, and purchase intentions. Allowing consumers to try the product had a positive effect on pleasure, arousal, hedonic attitudes, overall attitudes, and positive word of mouth. This may be particularly important in cases like the experimental scenario, where there is more than one environmentally friendly option.

The authors conducted post-hoc tests to see if product trial affected the relationship between explicit beliefs about the performance of environmentally friendly products and the evaluations of search and experience attributes. The interaction between trial and environmental performance was not significant. The results indicate that product trial can help overcome explicit beliefs, but it does not appear to affect cognitive evaluations. Instead, it affects attitudes and, ultimately, purchase intentions and positive word of mouth via the emotional path.

The study was limited because it only tests the effects on one product that is hedonic in nature. Further, the results were not compared with the results for a comparable, less environmentally friendly product, so it is possible that these results would be similar for a product that is not environmentally friendly.

Companies that market green products want to grow their market share. To do so, they need to understand how consumers respond to green products and how to effectively communicate with consumers. The study gives marketers insights on how the trial-attitude formation process for a green product works by

allowing consumers to evaluate an unfamiliar environmentally friendly product in several different conditions.

The study suggests the following theoretical implications: First, it demonstrates product trial can affect responses to green products, improving attitudes and affecting green product choice. Second, it accounts for the negative role of explicit quality beliefs about green products on both search attribute evaluations and pleasure or experience attribute evaluations, which affect utilitarian and hedonic attitudes, respectively. Third, it demonstrates enduring environmental values have a strong positive relationship with hedonic attitudes toward green products, which ultimately translates to increased positive word of mouth and purchase intentions. Fourth, it tests different relationships between the expectancy value of search attributes and utilitarian attitudes and the expectancy value of experience attributes and hedonic attitudes.

These findings should be evaluated with the following limitations in mind: The results were the result of a controlled experiment with a student sample in a laboratory setting. The authors used one product, which was hedonic and had low familiarity for the participants. While this design may have provided ideal conditions for triggering attitude change, it may also have limited the generalizability of the results. Whether consumers feel environmentally friendly product provide inferior performance may depend on the product category.

The product information provided by the flyers was information to simulate product information listed on a flyer, shelf-talker or on a website. Future research could compare the effects of advertising (either via similar or other methods) that uses emotional appeals that speak to the outcomes gained by experience. Further, the authors manipulated trial in the experiment. The trial was short-lived, as would occur in a retail setting. In addition, some consumers who have negative explicit beliefs about green products may not be willing to try the products, even in a retail environment where there are no commitments or risks associated with the trial. Although the random assignment of respondents to the conditions in each study helps alleviate the risk that this phenomenon created a confound in a current study, future research can examine how explicit beliefs affect trial. Therefore, future research could include field studies, additional experiments with different samples, and should extend the research to additional product categories.

Future research should also consider the effects of well-recognized brand names (e.g. Clorox Green Works) as another potential moderator to trial response since brand expectations have an impact on brand evaluations after trial (Fornerino and d'Hauteville 2010). In the same way, the effects of corporate leadership and company culture on perceptions of green products could be considered as another potential influence of attitudes toward green products

(Hillestad, Xie, and Haugland 2010). Advances in the segmentation of green consumers could also be considered, as different segments may respond to direct product experience in slightly different ways (Oliver and Rosen 2010; McDonald et al. 2012). Further, future research should study the relationship between false green claims (greenwashing) and product trial/presentation effects, since previous research suggests greenwashing increases confusion and perceived risk (Chen and Chang 2013).

In spite of these limitations, the results suggest some important implications for green product managers (Table Five). The findings suggest it is important for marketers to address explicit beliefs that environmentally friendly products do not perform as well as their less green product counterparts. If marketers understand their consumers' explicit beliefs, they can intervene with trials, advertisements and/or merchandise presentation and use purchase behavior and perhaps track social media activity to judge whether their interventions were effective.

**Table 5: Summary of Key Findings and Managerial Implications**

<i>Finding</i>	<i>Managerial Implication</i>
Explicit beliefs that green products are lower quality than their less environmentally friendly counterparts indirectly affect consumer attitudes and purchase intentions.	Emphasize relative quality in marketing communications. Give consumers the ability to experience quality through product demonstrations and trials.
Environmental values indirectly affect consumer attitudes and purchase intentions.	Consider distribution to alternative channels where consumers with high environmental values are likely to shop. Utilize different communications for different segments based on environmental values. Communicate about environmental friendliness to consumers who value it, but appeal to other values (e.g. cost savings, convenience) to less green segments.

<p><i>Showing a green product by itself, instead of featuring it next to its less environmentally friendly counterparts, can increase arousal, purchase intentions, and positive word-of-mouth.</i></p>	<p><i>Utilize end-cap displays and pop-up displays/promotions in different departments where the environmentally friendly product can be evaluated independent of other products in the category. In online environments, create a separate category for green products.</i></p>
<p>Trial can improve their pleasure, arousal, hedonic and utilitarian attitudes, and positive word-of-mouth about the product.</p>	<p>Utilize retailtainment events and hands-on product displays to give consumers an opportunity to see how the product works, which can help alleviate green product quality concerns (the sustainability liability). Offer liberal return policies in online environments.</p>

The results suggest that improving an individual's environmental values may have a positive effect on attitudes toward green products. Recent research suggests there is a potential to move markets by making pro-environmental attitudes and behaviors normal, using wider marketing approaches that do not position green products for a green niche (Rettie, Burchell, and Barnham 2014). However, the assumption is that pro-environmental behavior will become more socially normal over time. In the meantime, marketers may choose to segment their target audience based on environmental values. Marketing messages can be customized to address product benefits that deliver other value, such as lower lifetime costs or convenience, if environmental values are not important to a consumer segment. In addition, marketers could work with promotional agencies or in-house promotional talent to rely on trial to highlight experiential aspects of green products and improve hedonic attitudes, which may help drive overall attitudes, purchase intentions, and positive word-of-mouth.

Marketers should also consider the benefits of hands-on displays, particularly for hedonic green products. Marketers could also offer 30-day trials and flexible return policies to reduce the perceived risk and give the consumer the opportunity to gain first-hand experience with the product, which may help overcome negative explicit beliefs about green product performance. The study also suggests that marketers should also consider the potential advantages of featuring green products independently, using end cap or free-standing displays, if they want to generate additional buzz about the product in the form of positive word-of-mouth. The study suggests it is in the manufacturers' best interests to engage in efforts that help overcome consumers' explicit, negative beliefs about green product performance if they want to increase green product choice.

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## **Author Information**

Dr. Ashley earned her Ph.D. in Marketing from The University of Rhode Island and is an Assistant Professor of Marketing at The University of Rhode Island.

Dr. Oliver earned his Ph.D. in Marketing from The University of Rhode Island and is Associate Professor of Marketing at East Carolina University.

Dr. Zemanek earned his Ph.D. in Marketing from Texas A&M University and is Professor of Marketing at East Carolina University.