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## DO GREEN LIFESTYLE CONSUMERS APPRECIATE LOW INVOLVEMENT GREEN PRODUCTS?

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*Green products have become popular and have been targeted toward consumers who lead green lifestyles. Still, some green products are assumed to be more appealing to this group than others, sometimes based on level of involvement. This study tests a low involvement green product in terms of being appealing to consumers with green lifestyles. A theoretical model was developed and tested using a structural equation model. Results indicate that consumers with green lifestyles do value green attributes of low involvement products, in terms of consumer's attitudes and behavioral intentions. These results imply that companies with green low involvement products should target high-income females and stress the green attribute to motivate purchase intention.*

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### INTRODUCTION

Environmentally friendly, or *green* products, have become very popular and it is estimated that consumers will spend \$500 billion on green products this year (Weeks 2008). Thus, many manufacturers in various industries have adopted eco-friendly practices that affect not only the production process but also the resulting product (Kivimaa and Kautto 2010; Zhu et al. 2010). In most cases, green products target consumers who lead green lifestyles (Divine and Lepisto 2005; do Paço and Raposo 2010). However, not all green products might be valued equally by consumers. It is reasonable to assume that high involvement green products might be valued by consumers with green lifestyles. Will low involvement green products be of value to consumers with a green lifestyle as well? Will green attributes be important to consumers with green lifestyles when choosing a low involvement product?

Calendars are considered low involvement products. The calendar industry, which is partially related to the pulp and paper industry, is extremely competitive (Kivimaa and Kautto 2010) and as a result more companies are moving away from mass marketing of calendars

to niche marketing. Consumer behavior regarding calendars changed significantly with the introduction of electronic calendars (e.g., on computers, PDAs, and cell phones). Though calendar purchases are considered impulse buys, recently consumers have looked more for calendars that reflect their personal preferences. Celebrity calendars, lifestyle calendars, and popular dog calendars are examples of calendars addressing consumers' personal preferences. Consumers, particularly those with families, typically use more than one calendar (average of 2.5 per person) to satisfy their diverse needs (Counting the Days 2005).

A framework is proposed to examine green lifestyle consumers' attitudes toward green calendars and whether these attitudes result in green behavior, that is, choosing a calendar with a green attribute. An empirical study was conducted to test the proposed framework.

### PROPOSED FRAMEWORK

The proposed framework relates four concepts: demographics, green lifestyle, green attitude, and green behavioral intentions in the context of low involvement product category, a calendar (see Figure 1). Demographics such as income and gender have been found to be related to green lifestyle. Green lifestyle has been conceptualized in several ways, including

health-related and environment-related activities, values, and perceptions (Divine and Lepisto 2005; Fraj and Martinez 2006; do Paço and Raposo 2010). Green lifestyle can be also viewed as everyday green activities (Divine and Lepisto 2005). Green lifestyles have been related to product specific attitudes and behavioral intentions (Laroche et al. 2001; Dembkowski and Hanmer-Lloyd 1994; Jansson et al. 2011). The research question we asked is “Is the relationship between green lifestyle and behavioral intention mediated by green attitude toward the product?” The proposed framework aims to establish that, for low involvement products, an attitude toward a green product should mediate the relationship between green lifestyle and green behavioral intention.

**GENERATION OF HYPOTHESES**

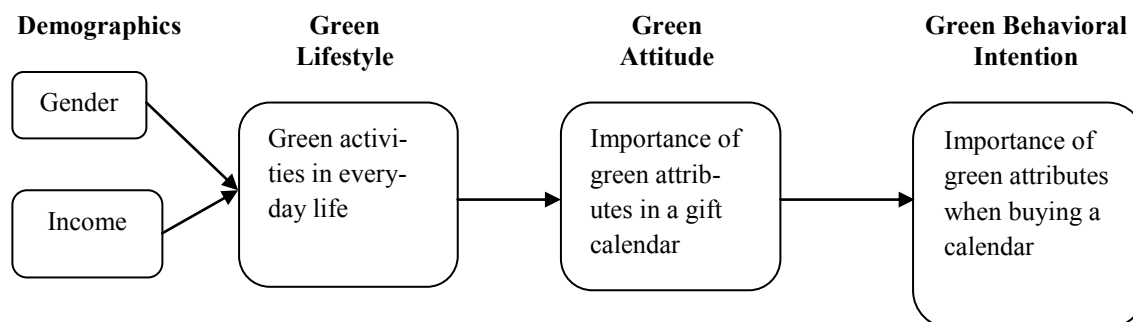
In terms of the demographic variables, studies show that women are more likely to consume healthier products, pay more attention to nutrition, and practice healthier diets (Divine and Lepisto 2005). We argue that women are also more prone to practice a general green lifestyle than men. Income is another demographic variable that has been shown to play a role in the green lifestyles of consumers. Consumption of healthier food (e.g., fruits and vegetables) has been positively associated with a higher income segment (Divine and Lepisto 2005). Thus, we argue that higher income consumers are more prone to lead green lifestyles than lower income consumers.

**H<sub>1</sub>:** Women are more inclined to practice every day green activities than men.

**H<sub>2</sub>:** Higher income consumers are more inclined to practice every day green activities than lower income consumers.

How does a green lifestyle relate to attitudes toward green attributes of products? Dembkowski and Hanmer-Lloyd (1994) suggest that attitudes toward green attributes are influenced by an individual’s values specific to the environmental domain. Individuals who value environmentally friendly consumption and usage patterns are more likely to have positive attitudes regarding green product attributes. We extend that framework to suggest that attitudes toward green product attributes are also influenced by a green lifestyle. A green lifestyle involves environmentally friendly consumption and usage patterns (Fraj and Martinez 2007; Chan 1999). Thus, it is reasonable to assume that individuals who value general green behavior (consumption and usage) also tend to practice it. Dembkowski and Hanmer-Lloyd (1994) note that attitudes toward green attributes are positively influenced by consumers’ environmentally relevant knowledge. Environmental knowledge, personal involvement, and perceived responsibility are important contributors to environmental general behavior (Chan 1999; Dembkowski and Hanmer-Lloyd 1994; Jansson et al. 2011), what we call green lifestyle. Positive attitudes toward

**FIGURE 1:  
Theoretical Framework**



green attributes are also strengthened when individuals exhibit willingness for personal sacrifice and perceive an ecological relevance to their individual actions (Dembkowski and Hanmer-Lloyd 1994; Fraj and Martinez 2007). We suggest the willingness for sacrifice and perceived ecological relevance of actions are also aspects of a green lifestyle. Therefore we suggest that attitudes toward green product attributes are influenced by a green lifestyle. Specifically we argue that consumers who lead green lifestyles are more inclined to value and appreciate green attributes of low involvement gifts such as a calendar. This can be reflective of the personal involvement and perceived responsibility aspects of consumers' green lifestyles.

**H<sub>3</sub>:** Consumers who practice every day green activities will value green attributes in a gift calendar.

Dembkowski and Hanmer-Lloyd (1994) also theorize that product specific green attitudes (e.g., attitudes toward products with attributes less harmful to the environment) will influence environmentally conscious purchases and consumptions. Although calendars are perceived as low involvement products (impulse purchase products), we argue that when consumers value the green attributes of gift calendars (green attitude) they will also perceive these attributes as important when considering making a purchase.

**H<sub>4</sub>:** Consumers that value green attributes in a gift calendar will perceive green attributes as important when considering whether to buy a calendar.

## METHODOLOGY

### Data Collection and Sample Description

This study was part of a larger research project that investigated attitudes and behavioral intentions of college alumni with respect to green products. Fieldwork began with semi-structured interviews of college alumni, in order to become familiar with issues and factors surrounding green, attitudes, and behavioral intentions related to college alma maters. From

these interviews a questionnaire was developed. Questionnaires were administered in-person via paper and pencil. Table 1 summarizes the descriptive characteristics of the sample. Survey data were collected from 101 college graduates from both private (33 percent) and public (67 percent) universities. In order to understand the relative size of their universities, respondents were asked to report the largest class size they attended while in undergraduate school. Sixty percent reported that their largest class size was above 100 students. This indicates that two-thirds of the respondents attended midsize or large public universities. About half of the respondents had graduated within the last five years, are married, and live in a two person household. The household income of the respondents is medium to high as only 24 percent earn annually \$60,000 or less. This implies that about half of the sample represents young professionals who have been recently married and probably have no children at home. The sample represents almost equally males (53 percent) and females (47 percent).

With respect to purchase and usage of calendars, almost 80 percent of the sample owns one to three wall calendars. Most frequently, calendars are received at work, as a gift, and/or are purchased in a retail store. Online purchases are more infrequent, as is receiving calendars from social groups or charities. On average, calendars are more frequently used for functional purposes (events and to-do-list) than as a decoration.

### Measures

The measurement items for the variables used in this study are listed in Table 2. To operationalize *Green Lifestyle* we used the 'actual commitment' dimension of Maloney and Ward's (1973) ecological scale. This is an established scale used in many studies to assess ecological/green lifestyle and the scale has been used in conjunction with structural equation analysis (Chan 1999; Fraj and Martinez 2006). The Green Lifestyle statements were formatted in a 5-point Likert-style with a scale ranging from "1" (strongly disagree) to "5" (strongly

**TABLE 1:**  
**Descriptive Characteristics of Participants (N = 101)**

Characteristic	Frequency (%) or Mean (S.D.)
Type of college attended as an undergraduate	Frequency (%)
Private	33
Public	67
Largest class attended in college (# of students)	Frequency (%)
39 or less	18
40-100	22
101-300	32
301 or higher	28
Years since an undergraduate degree was received	Frequency (%)
5 or less	51
6-10	34
11 or more	15
Gender:	Frequency (%)
Males	53
Females	47
Marital status	Frequency (%)
Married	50
Single	46
Divorced/Separated	4
Number of family members in the household	Frequency (%)
1	24
2	48
3	14
4 or more	14
Annual household income:	Frequency (%)
\$60,000 or less	24
\$60,001-\$90,000	32
\$90,001-\$120,000	19
More than \$120,000	25
Number of wall calendars household owns:	Frequency (%)
None	14
1-3	79
4 or more	7
Channels used to acquire calendars (scale: 1-never; 5-very often):	Mean (S.D.)
Purchased from a retail store	2.6 (1.35)
Purchased on-line	1.9 (1.33)
Received as a promotion	2.3 (1.23)
Received as a gift	2.7 (1.31)
Received from a social group or a charity	2.1 (1.33)
Received at work	2.9 (1.47)
Usage of calendars (scale: 1-never; 5-very often):	Mean (S.D.)
For daily events	4.0 (1.36)
For weekly events	4.2 (1.17)
For monthly events	4.4 (.97)
As a decoration	2.6 (1.44)
As a to-do-list	3.4 (1.52)

agree). An individual’s attitude toward receiving a gift calendar printed on environmentally friendly paper was captured with a single question, shown in Table 1, and labeled as *Green Attitude*. The values for Green Attitude ranged on a 5-point scale from “1”, “Not important at all”, to “5”, “Very important”. An individual’s behavioral

intention in choosing a calendar with green or environmentally friendly features was captured with a single question, shown in Table 2, and labeled as *Green Behavioral Intention*. The values for Green Behavioral Intention ranged on a 5-point scale from “1”, “Unimportant” to “5”, “Important”. Consistent with other studies on consumer lifestyles (Divine and Lepisto

**TABLE 2:**  
**Measurement Items and Statistics**

Latent Variables	Measured Variable	Measurement Item	Standardized Loading	Composite Reliability	AVE
<b>Green Lifestyle</b>	GL1	I guess I’ve never actually bought a product because it had lower polluting effect (reversed coded)	0.73***	0.89	0.56
	GL2	I make a special effort to buy products in recyclable containers	0.86***		
	GL3	I have switched products for ecological reasons	0.99***		
	GL4	I have attended a meeting of an organization specifically concerned with bettering the environment	0.81***		
	GL5	I subscribe to ecological publications	0.55***		
	GL6	I recycle at home or work	0.62***		
	GL7	I keep track of my congressman and senator’s voting records on environment issues	0.48***		
<b>Green Attitude</b>	Green Attitude	If your University/College were to send you a high quality wall calendar, how important is it to you that the calendar be printed on “environmentally friendly” paper?	1.00		
<b>Green Behavioral Intention</b>	Green Behavioral Intention	Please rate the following features on how much they are important or unimportant to you when choosing a calendar: Green/environmental	1.00		
<b>Gender</b>	Gender	Male or female (Coded 1 or 2)	1.00		
<b>Income</b>	Income	What is your annual household income? (Coded 1 through 7) Less than \$30,000 \$20,000-\$60,000 \$60,001- \$90,000 \$90,001- \$120,000 \$120,001- \$150,000 \$150,001- \$180,000 More than \$180,000	1.00		

**TABLE 3:**  
Correlations, Means, Standard Deviations, Minimum, Maximum

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	GL1											
2	GL2	-0.35**										
3	GL3	-0.47**	0.68**									
4	GL4	-0.39**	0.43**	0.40**								
5	GL5	-0.22*	0.26**	0.36**	0.62**							
6	GL6	-0.23*	0.39**	0.36**	0.15	0.17						
7	GL7	-0.22*	0.34**	0.26**	0.33**	0.41**	0.29**					
8	Green Behavior	-0.24*	0.57**	0.55**	0.41**	0.40**	0.36**	0.43**				
9	Green Attitude	-0.31*	0.56**	0.55**	0.44**	0.28**	0.27**	0.35**	0.74**			
10	Gender	0.07	-0.03	0.03	0.03	0.01	0.04	-0.14	0.10	0.17		
11	Income	-0.06	0.26*	0.12	0.12	0.12	0.03	0.16	0.08	-0.02	-0.22*	
	Mean	2.74	2.92	2.85	2.15	1.60	3.77	1.89	2.73	2.52	1.47	3.61
	S.D.	1.37	1.11	1.24	1.36	1.10	1.41	1.08	1.29	1.18	0.50	1.53
	Min.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	Max.	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	2.00	7.00

\*\*p≤.01; \*p≤.05; two tailed tests

2005), two control variables were also used: *Gender* and *Income*. Gender was coded as “1” for male, and “2” for female. Income was coded on a scale from “1” to “7”, using the ranges listed in Table 1, with “1” representing the lowest income category and “7” representing the highest. The correlations, means, standard deviations, minimums and maximums for all variables are shown in Table 3.

**Analysis**

The hypothesized structural equation model was tested using LISREL 8 (Jöreskog and Sörbom 2006). We used a two step approach to model testing as recommended by Anderson and Gerbing (1988). The first step includes the construction and validation of a measurement model, which specifies the relationships among the observed variables and latent variables. The second step involves testing the structural model which specifies the relationships among the latent variables. The measurement model allows assessment of convergent and

discriminant validity, while the structural model provides an assessment of nomological validity (Schumacker and Lomax 2004). We assumed no error on the single item variables.

In testing the structural model we used nested model tests to assess the fit of the hypothesized model and alternative models (Maruyama 1997). Nested models help validate the hypothesized model by comparing the chi-square of reasonable alternative models. Three models were constructed. Model 1 was a saturated model, with all paths between variables specified, including control variables. Model 2 was the hypothesized model. LISREL model results from Model 2 suggested that a slightly modified model would improve the fit. Therefore we ran a final model, Model 3, with two additional paths: from Green Lifestyle to Green Behavioral Intention and from Gender to Green Attitude.

## RESULTS

### Measurement Model

The first step in our analysis was to test the fit of the measurement model. Model fit is assessed in terms of three indices: comparative fit index (CFI), goodness-of-fit index (GFI) and root mean square of approximation (RMSEA). A model is considered to be satisfactory if CFI > 0.95, GFI > 0.90 and RMSEA < 0.06 (Hu and Bentler 1999; Bearden et al. 1993). The first measurement model tested did not fit the data well [ $\chi^2$  (38)=71.27, CFI=0.94, GFI=0.89, RMSEA=0.09]. A closer look at the LISREL output revealed that several of the measurement items for Green Lifestyle were correlated with each other. The measurement model was therefore refined to allow these measures to correlate. The resulting model exhibited satisfactory fit ( $\chi^2$  (35)=32.80, CFI=1.00, GFI=0.94, RMSEA=0.00).

In addition to model fit, we examined the convergent and discriminant validity of the measurement items for each latent variable. Table 2 summarizes the results of this analysis. Convergent validity refers to the extent to which multiple items measuring the same construct are in agreement (Nunnally 1978), and was assessed three ways. First, the standardized loading factors, which indicate the level of agreement between measurement items and a latent variable, are all significant ( $p \leq 0.001$ ) for the one multi-measured latent variable, Green Lifestyle. Second, the internal consistency for the measurement items was calculated using the composite reliability score developed by Werts and colleagues (1973). Composite reliability should be interpreted like a Cronbach's alpha coefficient and should exceed 0.70 (Fornell and Larcker 1981). Finally, the average variance extracted (AVE) is the ratio of the construct variance to the total variance among the indicators, and should be greater than 0.50 (Fornell and Larcker 1981). The composite reliability and AVE values in Table 2 exceed recommended levels and thus the latent variable of Green Lifestyle demonstrates good convergent validity.

Discriminant validity refers to the extent to which a construct is different from other constructs. Constructs demonstrate discriminant validity if the AVE is higher than the squared correlation between the constructs (Fornell and Larcker 1981). The square root of the AVE of the Green Lifestyle construct (0.75) is higher than the correlations between the other constructs, demonstrating discriminant validity.

### Nested Structural Model Tests

Table 4 contains the goodness-of-fit statistics for the nested model tests. The first criterion for model fit is the non-statistical significance of the chi-square test, which indicates that the sample covariance matrix and the model-implied covariance matrix are similar (Schumacker and Lomax 2004). The chi-square for model 1 is not statistically significant ( $p=0.57$ ) and the goodness-of-fit statistics are good (RMSEA = 0.00, GFI = 0.94, AGFI = 0.89, NFI = 0.91).

The next step is to test the saturated model against reasonable alternative models. When testing a parsimonious model against a fully saturated structural model, a non-statistically significant change in chi-squared is desired, indicating that the more parsimonious model fits as well as the saturated structural model, but the former has more degrees of freedom (Maruyama 1997). The second model, which was the hypothesized model, had a better fit than the saturated model (change in chi-square = 6.81,  $p > 0.10$ ). The third model was the hypothesized model with two additional paths, one from Green Lifestyle to Green Behavioral Intentions and another from Gender to Green Attitude Intention. The third model was a better fit than the saturated model (change in chi-square = 1.6,  $p > 0.10$ ). The third model also had better fit statistics than the second model (RMSEA = 0.00, GFI = 0.94, AGFI = 0.90, NFI = 0.90). Therefore we will discuss the results of the third model.



**TABLE 4:**  
**Nested Structural Model Statistics**

Model	$\chi^2$	df	p	RMSEA	GFI	AGFI	NFI
1. Saturated, baseline	32.80	35	0.57	0.00	0.94	0.89	0.91
2. Hypothesized, no control variable paths to endogenous variables	39.61	39	0.44	0.01	0.93	0.89	0.89
3. Hypothesized, with Gender path to Green Attitude and Income Path to Green Lifestyle	34.40	39	0.70	0.00	0.94	0.90	0.90

### Model Relationship Results

Figure 2 shows the standardized parameter estimates and t-values of the final model, Model 3. Table 5 summarizes the hypotheses testing results. The proposed framework suggested that green lifestyle varies for different demographic segments. However, H<sub>1</sub> was not supported. Females were not found to lead greener lifestyles than males. The second hypothesis was supported, higher income was related to green lifestyle. Hypotheses 3 and 4 were both supported. Practicing everyday green activities positively influenced valuing green attributes in a gift calendar (H<sub>3</sub>). The standardized path coefficient between these two variables suggests that Green Attitude increased 6.7 percent with every 10 percent increase in Green Lifestyle. In addition, valuing green attributes positively influenced the perception that green attributes were important when buying a calendar (H<sub>4</sub>). Based on the path coefficients, Green Behavioral Intention increased 4.8 percent with every 10 percent increase in Green Attitude.

In addition to the hypothesized relationships, two additional statistically significant relationships were found. Gender was found to be directly related to Green Attitude. Females, more so than males, found green attributes important. In addition Green Lifestyle was found to be directly related to Green Behavioral Intention. Green Behavioral Intention increased 3.6 percent for every 10 percent increase in everyday green lifestyle activities. Finally, the

squared multiple correlation (SMC) of Green Attitude (0.48), suggests that variation in that construct is well-explained by Green Lifestyle and Gender. Green Attitude and Green Lifestyle also explained much of the variation in Green Behavioral Intention, with an SMC of 0.60.

### DISCUSSION

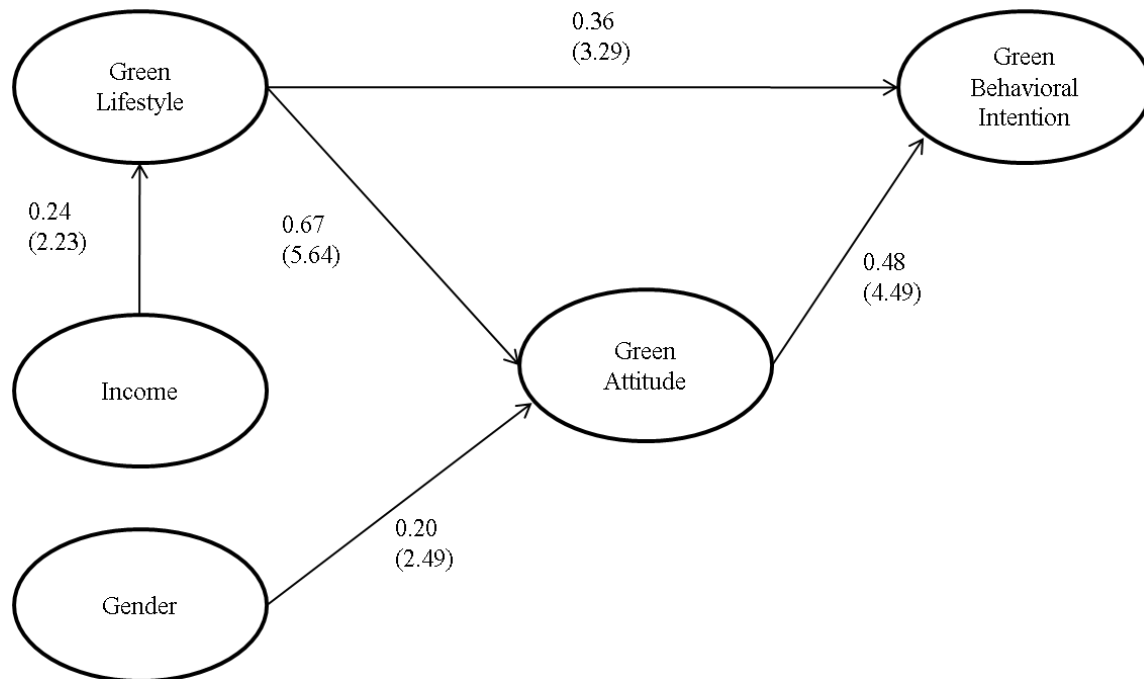
The proposed framework suggested that green lifestyle varies for different demographic segments. The results support this assumption for income but not for gender. Higher income was related to greener lifestyle (H<sub>2</sub>) while females were not found to lead greener lifestyles than males (H<sub>1</sub>). This is in contrast with previous studies that have found that women maintain a healthier lifestyle than men (Divine and Lepisto 2005). The measure used in this study did not focus only on the health aspect of green lifestyle and therefore could have produced different results from previous studies. Green attitude however varied by gender. Females were more prone to care about green attributes of a gift calendar than males. This relationship needs further investigation. This result might indicate that green attitude varies by gender based on the product category.

The framework also argued that green lifestyle influences green attitude which in turn influences green behavioral intention (H<sub>3</sub> and H<sub>4</sub>). This was supported by the SEM. However green attitude only partially mediated the relationship between green lifestyle and green

**TABLE 5:**  
**Summary of Hypotheses Testing**

Relationship	Argument	Hypothesis	Results
Demographics and Green Lifestyle	Women are more inclined to practice every day green activities than men.	H <sub>1</sub>	Not Supported
	Higher income consumers are more inclined to practice every day green activities than lower income consumers.	H <sub>2</sub>	Supported
Green Lifestyle and Green Attitude	Consumers who practice every day green activities will value green attributes in a gift calendar.	H <sub>3</sub>	Supported
Green Attitude and Green Behavioral Intention	Consumers that value green attributes in a gift calendar will perceive green attributes as important when buying a calendar.	H <sub>4</sub>	Supported

**FIGURE 2:**  
**Structural Equation Model 3**



*Notes:* This is a simplified version of the model. It does not show error terms or the indicator variables of the latent constructs. All paths are statistically significant at the level of  $p < 0.05$ . Text alongside arrows indicates standardized path coefficients and t-values.

behavioral intention. Green lifestyle also had a direct association with product-specific green behavioral intention. The partially mediated relationship between green lifestyle and green behavioral intention could result from using a low involvement products domain, specifically calendars, which are known as impulse purchases.

**Limitations.** Using a non-probability sampling method can put in question the representativeness of our findings. However, in collecting the data a quota sampling method ensured almost equal representation of males and females as well as a proportionate representation of public and private school graduates. The sample is skewed toward upper-middle class young professionals. However, research indicates that this Gen Y segment is more prone to purchase and use green products. Another limitation is measurement development process. Except for one measure, one-item scales were used as measures. More comprehensive measures should be developed in future studies to strengthen the validity and reliability of our results. Finally, the small sample size could have caused the insignificant relationship between gender and green lifestyle of respondents. Still, most relationships came out significant indicating that the sample size was not a major hindrance to the structural equation analysis. A larger scale sample should be employed to validate our findings.

**Managerial Implications.** These results have important implications for companies that market low involvement products. Our results indicate that green consumers are prone to choose low involvement products with green attributes. Thus, demand for green low involvement products exists within the young professional segment that practices a green lifestyle. Developing promotions to strengthen attitudes of green lifestyle consumers toward these products will increase green purchases. In particular, stressing the green attributes of low involvement products is essential to catching the attention of and motivating green lifestyle consumers to purchase those products. In addition companies with low involvement

products should identify and target the green lifestyle consumers in the higher income segment. Thus, green low involvement products should be placed in channels attracting the high income segment. Using Target instead of Wal-Mart might be one such strategy. Another strategy could be to target the high income segment based on geographic location. In high income areas the same channel might carry green low involvement products while in low income areas it might not. Such companies should also target their promotions more attentively toward the female segment in particular, with decorative low involvement products such as calendars. Decorative green low involvement products that are used as gifts might be more marketable as they are more attractive to women with a green lifestyle.

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