Who's Reading the Label? Millennials' Use of Environmental Product Labels

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The Green Marketing movement of the early 1990s was deemed a trend and disappeared as quickly as it came on the scene. However, recent concern for the environment in the new millennium has lead firms to undertake environmental improvements in their products for a number of reasons, including a desire to be more socially responsible and a desire to cater to the needs of socially conscious consumers, particularly younger consumers, who want to purchase green products. This study examined five independent variables (gender, environmental concern, environmental practices, environmental involvement, news frequency, and hobbies) in comparison to the dependent variable of product label use. The results indicate that label users tend to be female, highly concerned about climate change and air pollution, currently engage in environmental practices and environmental issues, and are more likely to be informed through traditional media outlets.

INTRODUCTION

The Green Consumer

Environmentally conscious consumers have traditionally been stratified by demographic variables which have been found to be significantly related to ecological purchasing: age, sex, education and income. Research from the last wave of environmental consumerism has shown that older consumers are more likely to show more environmental consumer behavior and females are found to be more environmentally concerned consumers than males. Previously, people with higher level incomes were found to be more environmentally concerned and people with higher levels of education also reportedly demonstrate more environmentally conscious behavior (Roberts, 1996). However, recently, income has not been as strong a predictor of ecological behavior as it has been in the past and the demographic composition of green consumers has changed over the last decade. This is possibly due in part to the greater attention media has given environmental issues and because environmental deterioration has reached the point where consumers from lower socioeconomic levels are becoming involved (Roberts, 1996). No longer is environmental consumerism for the socially elite.

The main environmental concerns for college-age students are health issues followed by wildlife and waste. On the other hand, working adults are concerned about health issues, waste and energy conservation (Stafford, Stafford & Chowdury, 1996). Since 1991, Americans have expressed less concern for environmental issues and more concern about such issues as economy, crime and health care. In the mid-1990s, the environmental movement seemed to be somewhere in the midpoint of the social issue life cycle. Acute concern may have declined but environmental behavior is still growing, especially in the areas of recycling and community activism (Stisser, 1994). For many consumers, being green involves a lifestyle that has a minimal adverse effect on the environment.

In theory, almost every American is proenvironment, but the environmental attitudes that come out in opinion polls change when actual consumer behavior is examined (Schwartz & Miller, 1991). The consumer's belief that he or she, as individuals, can help solve environmental problems was found to be the best predictor of ecologically conscious consumer behavior (Roberts, 1996). A consumer's environmental knowledge is positively related to their intention to purchase the product advertising to be green (Manrai, Manrai, Lascu, & Ryans, 1997).

A study by Pickett, Kangun, and Grove (1994) indicated that it is not demographics that determine a consumer's conservation habits, but rather psychological and social variables are considerably more powerful. In order for an environmental claim to have an impact on consumers, the claim should not be too strong, so that it will not be viewed as unachievable, but it should also not be too weak or it will considered trivial; thereby making a moderate claim the most effective (Manrai et al., 1997).

Teen Consumers

Today's teens are very different from previous generations, e.g. they are the world's first computer-literate generation and they are better-traveled than many of their parents. Also, they are concerned with social issues, particularly environmentalism (Tully & Schonfeld, 1994). The teenage market is growing and becoming more powerful. By the year 2010, the teenage population will reach 31 million with females accounting for 16.6 million. This is the largest teen population at any time since 1975 (Orsini, 1998). Teen consumers go to a shopping center 54 times a year and spend 90 minutes a visit, compared with all shoppers who go an average of 39 times a year and spend 75 minutes per visit (Voight, 1999). Teens spend at least \$95 billion a year on food, entertainment, clothing and health and beauty items, with female teens accounting for \$48.7 billion of that total (Fox, Krugman, et al., 1998).

With all of that teenage money bound for the marketplace, it is important to identify and understand the factors which influence teens' purchasing decisions. As identified in earlier research the top influencing factors of how teens spend their money are friends, followed by parents, advertising and lastly, television (Krol, 1997). In another study, Shim (1996) determined that peers, parents, printed media, TV commercials and consumer education play an important role in influencing adolescent consumer decision making.

Product Labeling

Research on product labeling has concentrated on food nutrition labeling and how it affects consumers' purchase decisions. Mazis and Raymond (1997) determined that nutrition labels did not affect consumers' beliefs about food products. However another study of the use of nutrition labels found that consumers with greater nutrition knowledge have a stronger motivation to acquire nutrition information from labels (Suter & Burton, 1996). Ford and Hastak (1996)

determined that health claims, e.g. "good for the heart" and nutrition labels influence consumers' beliefs about a product's healthfulness, but that the health claims do not influence the processing of the nutrition information presented on a food label.

Mangleburg, Grewal and Bristol (1997) examined how various aspects of the consumer socialization process affect affects teenagers' tendencies to use product labels. The use of environmental labels was not examined in their study. They determined that male and female teenagers differ in their use of product labels, finding that females tend to read the labels more than males. It was also demonstrated that females have greater exposure to marketplace-related communication from parents and peers than males and this exposure, in turn, positively affects teens' tendencies to use product labels.

Previous research of environmental labeling shows that widespread misuse of terms such as "biodegradable," "ozone friendly," and such, have caused a sense of confusion and distrust developed among consumers (Carlson, Grove, Laczniak & Kangun, 1996). Consumers are surrounded by products claiming to be environmentally friendly and the "green" trend could be abused or overused by marketers in search of way to entice consumers, much as the terms "light" and "natural" have been used with food products. Also, the "green" label can be used to convey so many different ideas that it could ultimately become meaningless (Zimmer, Stafford & Stafford, 1994). Terms such as "ozone friendly," "biodegradable," and "recyclable" have been misused and overused by marketers to the point that consumers are skeptical of their claims. Non-profit organizations have emerged to verify these claims and to promote the honest use of environmental claims by manufacturers. In the past, consumers have stated their willingness and desire to buy environmentally friendly products and seek out labels depicting a product's environmental consequence, but many feel they are being manipulated by corporations.

METHODOLOGY

This study was to determine the characteristics of teens that are most likely to respond to environmental labels on products when making purchases. The data were collected in an online survey of 265 students currently enrolled in universities in the United States. Response was voluntary. A request to have their students complete the survey was posted to an academic marketing listsery.

The label use dependent variable for this analysis was developed by the authors from responses to the three questions each on four "green" labels. These labels were: organic product, "Carton made from 100% recycled paperboard", the product "contains no CFCs ..." and "This product is not tested on animals." The three questions about each label determined the extent the respondent used the presented environmental label in making purchasing decisions. The three questions were: "Do you look at this label when buying a product?", "Would you buy a product with this label over an equal product without the label?" and "Would you pay more for a product with this label?" To each question the respondent was ask to "indicate how each label would influence your purchasing decision." The responses to these 12 questions (See Table 1) were used to create an independent variable used to stratify respondents into "high label users" and "low label users".

The sample was ranked as either "high users" or "low users" depending upon their response to use of labels indicating organic product, recycled packaging, recyclable packaging, and against animal testing. The ranking categories for each question were: "Always", "Often", "Seldom" and "Never". To develop the "label user" independent variable, responses of "Always"

or "Often" were assigned a value of "0". And responses of "Seldom" or "Never" were assigned a value of "1". These values were summed across all 12 questions. Therefore if a respondent answered "Always" or "Often" to all 12 questions the summed value would be zero. Conversely if the responses were "Seldom" or "Never" to all 12 questions the sum would be 12. This sum was used to assign a "label user" designation to each respondent. If the sum was 0 to 6 the respondent was designated as a "high label user". If the sum was 7 to 12 the respondent was designated as a "low label user".

Of the 258 respondents 22 responded "Never" to all 12 of the label use questions while only two responded "Always" to all 12 questions.

TABLE 1 QUESTIONS FOR DETERMINING LABEL USE

Organic Product Label
Q1Do you look for this label when buying a product?
Q2Would you buy a product with this label over an equal product without
the label?
Q3Would you pay more for a product with this label?
Recyclable Content Label
Q4Do you look for this label when buying a product?
Q5Would you buy a product with this label over an equal product without
the label?
Q6Would you pay more for a product with this label?
No CFCs Label
Q7Do you look for this label when buying a product?
Q8Would you buy a product with this label over an equal product without
the label?
No Animal Testing Label
Q9Would you pay more for a product with this label?
Q11-Would you buy a product with this label over an equal product without
the label?
Q12Would you pay more for a product with this label?

These questions were used to determine if a person was a high or low-label user. This code was used for the subsequent analyses.

Hypotheses Development

Literature in this area guided us in the development of five hypotheses that replicate the "teen/university student" population studies done for other (generally broader) populations. These five hypotheses are:

- Hypothesis 1: High label users will be female,
- Hypothesis 2: High label users will be environmentally concerned,
- Hypothesis 3: High label users will practice environmental behavior,
- Hypothesis 4: High label users will be highly involved in environmental issues and
- Hypothesis 5: High label users will be more informed through media.

From the previous research in this area the authors anticipated that all five hypothesizes would be supported by the data.

RESULTS

Gender Differences

Hypothesis 1: High label users will be female.

Previous research determined that females are more likely to read product labels and to be more concerned about the environment. The results from this study were consistent with the earlier research findings. There is a relationship between gender and label use. Of the 12 questions used to determine label use, nine were statistically significant as the result of a one-tail t-test. This indicates that for this group of college students, gender is a determining factor when describing label users.

However, the finding was not consistent across all four labels (See Table 2). For example for the organic label the more rigorous two-tailed T-test determined that there was no statistically significant difference between males and female in the use of the organic product label. With the one exception that females are somewhat more willing to pay more for an organic product. However this was only found to be statistically significant using the one-tailed T-test but was not statistically significant using the more rigorous two-tailed test.

TABLE 2 RESULTS FOR GENDER

Results for Hypothesis 1

			$P(T \le t)$		$P(T \le t)$	
	Male	Female	one-tail	Significant	two-tail	Significant
Organic Product						
Q1 Look at label	3.38	3.23	0.0873	No	0.1746	No
Q2 Select	2.76	2.73	0.4331	No	0.8663	No
Q3 Pay more	3.27	3.06	0.0300	Yes	0.0600	No
Recycle						
Q4	3.43	2.98	0.0002	Yes	0.0003	Yes
Q5	2.90	2.62	0.0209	Yes	0.0419	Yes
Q6	3.26	2.80	0.0002	Yes	0.0004	Yes
CFC						
Q7	3.34	3.04	0.0081	Yes	0.0162	Yes
Q8	2.78	2.34	0.0006	Yes	0.0012	Yes
Q9	3.10	2.59	0.0001	Yes	0.0001	Yes
Animal Testing						
Q10	3.18	3.14	0.3552	No	0.7104	No
Q11	2.71	2.36	0.0036	Yes	0.0073	Yes
Q12	3.09	2.87	0.0341	Yes	0.0682	No

Mean 1-Males Mean 2-Females For the Recycling and No CFCs labels, females consistently read and used the labels more than males as measured by both the single and two-tailed T-test for all six questions. For the "No Animal Testing" label the results were interesting. Both males and females read the label with no statistical difference; however, females were more likely to use the label information in a buying decision (significant at both the one and two-tailed test). Females were somewhat more likely to also be willing to pay more for a product that did not use animal testing.

The mean Rank weight for females was all numerically lower than the value for males even though only 9 were statistically significant by the two-tailed T-test.

Environmental Concern and Label Use

Hypothesis 2: High label users will be environmentally concerned.

As indicated in previous nutrition research, individuals that have a concern about the product will be more likely to read the label. The result of the two-tailed T-test indicates strong support for H2, environmental label users will be more environmentally concerned and supports that there is a relationship between the level of environmental concern and the use of environmental product labeling when making a purchase decision (See Table 3).

TABLE 3
RESULTS FOR ENVIRONMENTAL CONCERN

Results for Hypothesis 2

	Low	High				
	Label	Label				
	Use	Use				
	Mean	Mean	$P(T \le t)$		$P(T \le t)$	
	1	2	one-tail	Significant	two-tail	Significant
Acid Rain	2.63	2.24	0.0023	Yes	0.0046	Yes
Air Pollution	1.66	1.36	0.0003	Yes	0.0006	Yes
Animal Testing	2.16	1.66	0.0000	Yes	0.0001	Yes
Clear-Cutting of						
Forests	1.82	1.33	0.0000	Yes	0.0000	Yes
Climate Change	1.77	1.30	0.0000	Yes	0.0000	Yes
Endangered Animals	1.86	1.50	0.0004	Yes	0.0008	Yes
Energy Conservation	1.92	1.44	0.0000	Yes	0.0000	Yes
Hole in the Ozone						
Layer	1.98	1.43	0.0000	Yes	0.0000	Yes
Land Fills	2.32	1.94	0.0022	Yes	0.0043	Yes
Losing the						
Rainforests	1.95	1.43	0.0000	Yes	0.0000	Yes
Loss of Wetlands	2.10	1.64	0.0000	Yes	0.0001	Yes
Over Population	1.97	1.69	0.0075	Yes	0.0149	Yes
Recycling	1.91	1.54	0.0001	Yes	0.0002	Yes
Toxic Waste	1.92	1.60	0.0032	Yes	0.0065	Yes
Waste Reduction	1.93	1.49	0.0000	Yes	0.0001	Yes
Water Pollution	1.66	1.23	0.0000	Yes	0.0000	Yes

In 1995 (Stafford, Stafford & Chowdry), previous research indicated that the main environmental concerns for college-age students are health, wildlife and waste. The results from this study, however, demonstrated that climate change and air pollution were the issues ranked highest for level of concern, followed by the hole in the ozone. Toxic waste was only mentioned by 3 respondents, and land fills was not indicated by any of the respondents.

Of the 16 environmental concerns presented to respondents, the High vs. Low Label Use variable was clearly consistent with the level of environmental concern. Further it is interesting to note that the three environmental concerns with the least numeric difference between "High" and "Low Label Users" are "Over Population", "Air Pollution" and "Toxic Waste". And the three with the largest numeric difference are "Animal Testing", "Losing the Rainforests" and "Hole in the Ozone Layer" (See Table 4).

TABLE 4
DISTRIBUTION OF CONCERNED FOR ISSUES

acid rain	1
air pollution	46
animal testing	4
clear-cutting of forests	3
climate change	58
endangered animals	6
energy conservation	12
hole in the ozone layer	26
land fills	0
losing the rainforests	10
loss of wetlands	3
over population	12
recycling	10
toxic waste	3
waste reduction	3
water pollution	21
TOTAL	218

Environmental Practices and Label Use

Hypothesis 3: High label users will practice environmental behavior.

Environmental practices were anticipated to be a predictor of use of environmental labels. With the exception of composting, this hypothesis was supported by a one-tail t-test (See Table 5). Four environmental behaviors were not statistically different when comparing "Low" vs. "High Label Users". These were "Recycle aluminum cans", "Recycle newspapers", "Recycle plastics" and "Put garbage in compost". With the exception of composting the three environmental activities not statistically significant using the 2-tailed test are behaviors that are widely accepted and encouraged by public activities to provide local recycling services. These behaviors also have among the smallest mean difference.

TABLE 5 RESULTS FOR ENVIRONMENTAL BEHAVIOR

Results for Hypothesis 3

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	_				
Mean	Mean	$P(T \le t)$		$P(T \le t)$	
1	2	one-tail	Significant	two-tail	Significant
2.87	2.34	0.0000	Yes	0.0001	Yes
2.64	2.07	0.0000	Yes	0.0000	Yes
2.56	1.87	0.0000	Yes	0.0000	Yes
1.59	1.33	0.0037	Yes	0.0074	Yes
2.26	1.99	0.0478	Yes	0.0957	No
2.47	2.07	0.0102	Yes	0.0203	Yes
2.41	2.11	0.0412	Yes	0.0823	No
2.35	2.06	0.0416	Yes	0.0832	No
2.93	2.69	0.0775	No	0.1550	No
2.70	2.13	0.0000	Yes	0.0000	Yes
2.59	2.16	0.0001	Yes	0.0002	Yes
2.99	2.16	0.0000	Yes	0.0000	Yes
2.97	2.39	0.0000	Yes	0.0000	Yes
3.01	2.34	0.0000	Yes	0.0000	Yes
2.74	2.10	0.0000	Yes	0.0000	Yes
	2.64 2.56 1.59 2.26 2.47 2.41 2.35 2.93 2.70 2.59 2.99 2.97	Label Mean Label Mean 1 2 2.87 2.34 2.64 2.07 2.56 1.87 1.59 1.33 2.26 1.99 2.47 2.07 2.41 2.11 2.35 2.06 2.93 2.69 2.70 2.13 2.59 2.16 2.97 2.39 3.01 2.34	Label Mean Label One-tail P(T<=t) One-tail 2.87 2.34 0.0000 2.64 2.07 0.0000 2.56 1.87 0.0000 1.59 1.33 0.0037 2.26 1.99 0.0478 2.47 2.07 0.0102 2.41 2.11 0.0412 2.35 2.06 0.0416 2.93 2.69 0.0775 2.70 2.13 0.0000 2.59 2.16 0.0001 2.99 2.16 0.0000 3.01 2.34 0.0000	Label Mean Mean Mean I P(T<=t) one-tail Significant 2.87 2.34 0.0000 Yes 2.64 2.07 0.0000 Yes 2.56 1.87 0.0000 Yes 1.59 1.33 0.0037 Yes 2.26 1.99 0.0478 Yes 2.47 2.07 0.0102 Yes 2.41 2.11 0.0412 Yes 2.93 2.69 0.0775 No 2.70 2.13 0.0000 Yes 2.59 2.16 0.0001 Yes 2.97 2.39 0.0000 Yes 3.01 2.34 0.0000 Yes	Label Mean Mean Mean I P(T<=t) One-tail Significant I Sig

Mean 1-Low Label Users Mean 2-High Label Users

The behavior with the highest numerical rank mean value (Q 12 Use products because they are not tested on animals) means it is least likely to the practiced by "Low Label Users".

Environmental Involvement and Label Use

Hypothesis 4: High label users will be highly involved in environmental issues.

As Schuhwerk and Lefkoff-Hagius (1995) indicated in their study, involvement with environmental issues proved to be a reliable indicator of product environmental label use. Based on the response to a series of six questions regarding environmental practices, high label users were more likely to be highly involved in environmental issues.

Respondents answered "Very Much", "Somewhat", "Not very much" and "Not at all". Responses were rank coded "1" through "4" with "Very Much" being "1" and "Not at all" being "4". The mean rank for Low and High Label Users were significantly different for all six questions using both the one and two tailed T-test except for the two tailed test for Question 6

(See Table 6). Question 6 is "Do you think the condition of the environment affects your quality of life?" For both High and Low Label Users the Rank mean was the lowest numerical value when compared to the other five questions which means that both Low and High Label Users believe the environment has an impact on their lives. Also the rank mean difference was the lowest for all six questions showing that Low and High Label Users were "closer" to agreeing on this issue than the other five presented issues.

TABLE 6 RESULTS FOR INVOLVEMENT WITH ENVIRONMENTAL ISSUES

Results for Hypothesis 4

	Low Label User	High Label User	P(T<=t)	Ciarifia and	P(T<=t)	G::G:	Mean difference
01.11	Mean 1	Mean 2	one-tail	Significant	two-tail	Significant	(1 minus 2)
Q1 How informed							
do you feel you are about environmental							
issues?	2.17	1.94	0.00619	Yes	0.01238	Yes	0.23
	2.17	1.74	0.00019	168	0.01236	168	0.23
Q2 How concerned							
are you with the	1.04	1.50	0.00002	37	0.00002	37	0.24
environment?	1.84	1.50	0.00002	Yes	0.00003	Yes	0.34
Q3 Are you willing							
to make sacrifices to							
pretect the environment?	1.98	1.71	0.00116	Yes	0.00231	Yes	0.27
	1.98	1./1	0.00110	res	0.00231	ies	0.27
Q4 Would you be							
willing to pay 5							
cents deposit on returnable bottles?	2.24	1.67	0.00000	Yes	0.00000	Yes	0.57
Q5 Do you feel that	2.24	1.07	0.00000	1 68	0.00000	1 68	0.37
your actions have an							
impact on the							
environment?	1.89	1.53	0.00064	Yes	0.00127	Yes	0.37
Q6 Do you think the	1.07	1.33	0.0004	108	0.00127	103	0.37
condition of the							
environment affects							
your quality of life?	1.60	1.41	0.03149	Yes	0.06299	No	0.19

News Frequency and Label Use

H5: High label users will be more informed through media.

Frequency of watching television news and reading newspapers was proven as a valid predictor of the use of environmental labels as was hypothesized. The results indicate a strong relationship ($\underline{p} < .05$) between how much news a person watches or reads and whether or not they are likely to look for environmental labels (See Table 7).

The sample responded to three questions concerning frequency of watching national and local televised news and reading a newspaper. The frequencies were broken down on a scale as "every day," "4-6 days a week," "1-3 days a week," or "never." Rank of "1" through "4" were assigned to the responses with "every day" being "1" and "never "being "4". The finding shows that Low Label Users are less likely to watch television or read a newspaper that High Label Users. It is interesting to note that the differences between "High Label" and "Low Label Users" were statistically significant for all three questions under both the one-tailed and two-tailed T-test. And for Question 1 and 2 the mean usage rank for High and Low Label Users was virtually the same (Q1 2.8 vs 2.27 and Q2 2.82 vs 2.29). But both Low and High Label Users favored television over "reading a newspaper".

TABLE 7 RESULTS OF MEDIA USAGE

Results for Hypothesis 5

	Low Label	High Label					Mean
	User	User	$P(T \le t)$		$P(T \le t)$		Difference
	Mean 1	Mean 2	one-tail	Significant	two-tail	Significant	(1 minus 2)
Q1 How							
often do you							
watch local							
television							
news?	2.80	2.27	0.00002	Yes	0.00003	Yes	0.53
Q2 How							
often do you							
watch							
national							
television							
news?	2.82	2.29	0.00004	Yes	0.00007	Yes	0.53
Q3 How							
often do you							
read a							
newspaper?	3.03	2.71	0.00909	Yes	0.01818	Yes	0.31

LIMITATIONS AND FUTURE RESEARCH

This study was limited to a small sample of college students who completed the online survey because of the urging of their faculty. Future research should broaden the sample to include 18-22 year-olds that are not necessarily attending college, but are more representative of the entire population. Additionally the sample should be a cross section of the United States and not limited to regional participation, as was the case of the current study. Future research is also needed to expand the sample to include a hard-to-reach "tween" population of 8-12 year-olds as well as 12-17 year olds.

MANAGERIAL IMPLICATIONS

This study measured five independent variables to determine if certain characteristics were present among people who were more likely to read environmental labels. A significant relationship appeared between gender, environmental concern, environmental practices, environmental involvement, and news frequency with label use. The strongest relationship appears to be the level of concern for environmental issues.

The implications from this study suggests that for marketers wishing to promote the environmentalism of their product and organizations targeting environmental practices, they would be best served by targeting individuals that are already active in environmental causes and highly involved with the environment. This research also implies that it is possible that ecolabeling would appeal more to women. Because of the relationship between label use and consumption of news sources, advertising during news programs may prove beneficial to environmental marketers. Because of the age of the sample for this survey, this study additionally provides important information for environmental organizations that desire attracting the lucrative teenage market. The results indicate that in order to make teenage consumers aware of environmental labeling and product choices, it is necessary to get teens involved with the environment and educate them of environmental issues.

The major purpose of this study was to determine the characteristics of young consumers and their use of environmental packaging labels. The results indicate that label users tend to be female, highly concerned about climate change and air pollution, currently engage in environmental practices, involved in environmental issues, and are more likely to be informed through traditional media outlets.

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