

Attitudes and behavior: Are produce consumers influenced by eco-labels?

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Abstract

Small food producers throughout the U.S. and Europe are busy trying to persuade consumers to buy and even pay more for products that come from ecologically sensitive management rather than heavily subsidized and environmentally destructive mainstream practices. Many of these groups hope to mitigate an environmental problem by internalizing the true costs of production, through the use of an eco-label; a visually simple label that communicates to the consumer something environmentally unique about the product. One of the most popular eco-labels used in the U.S. is the dolphin-safe label on some brands of canned tuna fish. Little is known, however, about the actual effectiveness of such labeling. The most popular approach to evaluating consumer behavior has been through attitude surveys. However, there can be problems associated with trying to predict behavior from attitudes. Preliminary work at supermarkets in the Portland, Oregon area suggested that consumers were aware of eco-labels on apples and pears certified by The Food Alliance, a non-profit organization that has developed a certification and eco-labeling program for environmentally conscientious farmers and their products. The purpose of the current study was to examine how well awareness of the TFA eco-label correlated with consumer behavior and environmental attitudes. Behavior observation and attitude questionnaire data from consumers in five different grocery stores showed small positive relationships between awareness of the labels, consumer attitudes, and consumer behavior. Results suggest that environmentally conscientious consumers do care about purchasing environmentally favorable products, but that other factors play important roles in consumer behavior.

INTRODUCTION

According to a 1996 national attitude survey commissioned, in part, by The Food Alliance, 52% of American consumers are willing to buy environmentally friendly products, but most don't because they can't easily find earth-sustainable products that meet their core purchase criteria (Hartman 1996). Food producers throughout the U.S. and Europe are busy trying to persuade consumers to buy and even pay more for products that come from ecologically sensitive management rather than heavily subsidized and environmentally destructive mainstream practices. Each group hopes to mitigate an environmental problem by internalizing the true costs of production, through the use of an eco-label (Chasteen 1999).

An eco-label is a visually simple label that communicates to the consumer something environmentally unique about the product. One of the more popular eco-labels used nationwide in the U.S. is the dolphin safe label on some brands of canned tuna fish. The silhouette of a dolphin leaping is supposed to communicate to the consumer that no dolphins were intentionally killed while harvesting the tuna fish packaged by that processing company.

The Food Alliance (TFA), a non-profit organization located in Portland, Oregon, has developed a certification and eco-labeling program for environmentally conscientious Pacific-Northwest farmers and their products. In 1998, the Natural Resources Conservation Service, an agency of the U.S. Department of Agriculture, became aware of what TFA was doing in the Pacific Northwest because one of the certification requirements for TFA stewardship certification was "Do you have an approved NRCS conservation plan?". Recognizing that the TFA and the NRCS held complimentary missions, and that the TFA was indirectly promoting the NRCS mission to get conservation on private lands in the United States, a small cooperative agreement was formed to evaluate the effectiveness the TFA eco-label.

The most popular approach to evaluating human behavior has been through attitude surveys. However, there are inherent problems associated with trying to predict behavior from attitudes, especially when working with general attitudes vs. specific behaviors (see Ajzen & Fishbein 1980, also see Kaiser et al 1999 for a nice overview of the

attitude literature). A Canadian consumer environment study (1993), garbage studies done at the University of Arizona by Rathje (1984, 1989), and recycling studies (Corral-Verdugo 1997, Werner & Makela 1998) are a few studies that clearly show how inconsistent and unpredictable human behavior can be.

Interesting and encouraging research on environmental attitudes done by The Hartman Group, funded in part by The Food Alliance, prompted evaluation of whether or not attitudes had anything to do with consumer behavior. Was the consumer's purchasing behavior influenced by the TFA seal of approval on certified fruit in grocery produce areas? Did the TFA eco-label convince consumers to purchase fresh TFA certified produce? A unique method of evaluating consumer attitudes and observing consumer behavior toward a labeled product was developed specifically for this study.

METHOD

Participants

Participants were 226 consumers (85 males, 140 females, and one consumer who provided no gender information) contacted in five stores in the Portland, Oregon suburban area. Consumers ranged in age from their 20s to 80s.

Procedure

The method used in this study enabled a unique comparison of behavior and attitudes through the combination of observation techniques from the field of museum studies and attitude scaling. Specific attitude questions as well as a single dimension (environmental concern) from an attitude scale currently under development (see Clarke 1998) were used to measure attitude. Survey work also addressed the effectiveness of The Food Alliance's eco-label displayed in grocery store produce areas and on produce (e.g. apples and pears) for sale in five different Portland metro area grocery stores.

The interviewer was instructed to take his or her place at the corner of the produce section in the grocery store where a certified farmer's fruit was being displayed (with THE FOOD ALLIANCE label) for sale. With a stop watch in their pocket, the interviewer was instructed to randomly choose a consumer who was observed shopping in the produce

department. Observations were to be recorded for the following things: stopping at The Food Alliance fruit, reading of the sign (latency recorded), picking up the fruit, placing the fruit in their basket or cart. Then, when that consumer started to exit the produce department, the interviewer was instructed to intercept the individual and ask them if they would participate in a two-minute survey. If the consumer agreed, the interviewer would give them the sheet of written attitude questions and ask them to respond to all questions as accurately as possible.

RESULTS

Demographic information was evaluated with the use of descriptive statistics to obtain frequency and distribution information. 36% of the consumer survey participants were in the "40s" age category and 62% of those surveyed were women. Two-thirds (67%) surveyed had a college or graduate degree and 41% were from two person households. The most frequent income levels (25%) across consumer survey participants fell into two groups, \$41,000-\$60,000 and \$100,000+.

Behavioral Observation variables

Less than half of the consumers (46%) stopped at the TFA produce display. Of those who stopped, only 22% were observed looking at the TFA signs and 41% of those looking at the TFA signs were observed actually reading them. Less than half (44%) of the consumers observed, picked up a TFA apple or pear and 42% of all consumers placed TFA apples or pears in their shopping cart.

Attitude Questions

Of those consumers observed, 22% declined to participate in the two-minute intercept interview. Consumers observed who agreed to fill out the written survey provided the following responses: When asked "Did you notice the TFA seal/sign in the produce area?" 18% said yes. When asked "Did the seal/sign influenced your decision to buy the TFA produce?" 6% said yes. Over half (57%) of the customers agreed with the statement "I look for products that say they are environmentally friendly" and 62% of those same customers agreed or strongly agreed with the statement "I would be willing to pay more for produce grown in an environmentally responsible manner." 87% agreed or strongly agreed with the statement "How food is grown affects the

environment." 85% agreed or strongly agreed that "products that claim to be environmentally friendly should be certified as such." 73% agreed or strongly agreed that "It is important for me to know how my food is grown." Only neutral (6%), agree (41%), and strongly agree (54%) were chosen as responses when asked to evaluate the statement "There is a connection between the health of the environment around me and my well-being."

Environmental Concern Attitude Scale

Environmental concern attitudes were evaluated using responses to nine questions (see Appendix for questions). The range of possible scores on the scale was 9 to 45, with 45 representing very high concern for the environment. The average of all the consumer's scores was 27, below which 10% of the consumers scored. The largest number of scores (28%) clustered around scores of 33-36, and 8% of the customers scored 45 representing the highest environmental concern score possible. The lowest score in this convenience sample was 22, which represents a very low level of concern for the environment.

Attitudes vs. Observed Behavior

Regression analysis on the relationship between the attitude scale score and the observed behavior items, i.e. attitude scale score = f (Did consumer stop at TFA display?, Did consumer pick up apple/pear?, How long did consumer look at display?, How did consumer look at TFA display?) yielded an adjusted $R^2 = .31$ ($F = 3.58$, $p < .02$). In other words, 31% of the variation in attitude score is explained by the behavior variables listed in parentheses above.

Regression analysis on the question "Do you look for products that say they are environmentally friendly?" versus the observed behavior of looking at TFA signage yielded an adjusted R^2 of 3% ($F = 6.34$, $p < .01$).

The Influence of Store Location

The data for this study consist of convenience samples gathered from five different grocery stores in the Portland, Oregon metro area. All of the stores studied were locally owned "Lamb's" or "Thriftway" grocery stores (i.e. not specialty or "natural foods") close to 53% of the consumers surveyed reported income levels that would categorize them as upper middle or high income. Four out of the five stores located in Palisades, Garden Home, Wilsonville and Stroheckers, were considered to

be located in higher income neighborhoods. The Troutdale Thriftway store, located east of downtown Portland, was considered to be located in a working class type of neighborhood. Almost all of the differences across stores involve the difference between the Troutdale store and another store.

One-way analysis of variance, coding each store from "1" to "5", was performed on the data to explore the strength and significance of the relationship between the behavior variables and the attitude variables. Scheffé tests ($p < .05$) were also run on each of the items across the five stores to find any significant differences between the five stores.

A main effect for income (measured in six levels) was found $F(4,153)=4.54$, $p<.01$. The Scheffé test for income across the five stores indicated that the income levels of consumers in the Palisades store ($M=4.06$, $SD=1.80$) was significantly greater than consumers in the Troutdale store ($M=3.09$, $SD=1.28$).

A main effect for education (measured in four levels) was found $F(4,175)=5.81$, $p<.001$. A Scheffé test education across the five stores indicated that the Stroheckers customers ($M=3.27$, $SD=.75$) had significantly higher education levels than the Troutdale customers ($M=2.40$, $SD=1.01$).

A main effect for attitude scale scores was found $F(4,165)=4.95$, $p<.00$. A Scheffé test on attitude across the five stores indicated that consumer environmental attitudes were significantly lower at the Wilsonville ($M=33.45$, $SD=5.30$) versus the Troutdale store ($M=38.10$, $SD=5.93$).

A main effect across the five stores for whether or not the customer stopped at the TFA produce display was found $F(4,225)=22.20$, $p <.00$. The Scheffé test on stopping at the signage across the five stores indicated differences in consumer behavior between the following stores: Troutdale ($M=.26$, $SD=.45$) differed from the Garden Home store ($M=.94$, $SD=.25$) and the Stroheckers store ($M=.65$, $SD=.48$); the Wilsonville store ($M=.20$, $SD=.40$) differed from Stroheckers and Garden Home; and the Palisades Lamb's ($M=.43$, $SD=.51$) differed from Garden Home. The descending order of frequency of stops at TFA display by store was as follows: Garden Home had the most display stops followed by, Stroheckers, Palisades, Troutdale and Wilsonville had the least number of display stops.

The only attitude question (not contained in the attitude scale) that showed a main effect was "How food is grown affects the environment" $F(4,176)=3.96$, $p=.00$. A Scheffé test on this question, across the five stores indicated differences between the Wilsonville ($M=4.15$, $SD=.77$) and Troutdale ($M=4.67$, $SD=.57$). While none of the consumers interviewed rated this statement with anything less than a neutral response, the Troutdale store had the highest number of "strongly agree" responses.

DISCUSSION

The goal of this study was to see if an eco-label made a difference ... ultimately the question investigated was whether or not the TFA label inspired consumers to behave in a consistent manner with their attitudes while shopping for produce in a grocery store. It was anticipated that this combination of attitude questions and the museum studies type of behavior observation would provide insight into the links, if any, that exist when an environmentally sensitive product, clearly labeled as such, is made available in the marketplace. A general consensus on whether or not attitudes predict behavior has been evolving in psychological research for decades. According to Fishbein and Ajzen (1975, cited in Bell et al., 1996, p. 32), a general attitude may not predict a specific behavior. Nevertheless, a multiple-item scale measuring components of an attitude can help predict a class of behaviors. A pro-environmentalist may not be diligent about turning a light out when they leave a room, but someone who adheres to several pro-environmental concepts probably does engage in more pro-environmental behaviors (recycling, carpooling, water conservation) than someone who is not concerned with the environment.

The expectation that environmental attitudes would be reflected in consumer behavior was confirmed, albeit with a small but significant effect size. However, it is clear from closer examination of the data that, as Chaiken and Stangor (1987) claim, a number of variables affect our behavior directly without operating on behavioral intentions. For example, the observation that only 46% of the consumers stopped at the TFA produce display could have been for reasons such as: the consumer was in a hurry, they did not see the tiny, waist-high sign attached to the display, or they did not see the poster taped to the corner of a wall in the back of the produce area. Also, the consumer may not

have been shopping for apples or pears that day or it could also have been that the consumer didn't care about purchasing environmentally friendly produce. However, the observation that 44% of the consumers observed picked up a TFA apple or pear and 42% of all consumers showed intent to purchase the fruit by placing it in their cart proves otherwise.

A 22% decline rate for the intercept interview is very good and the immediacy of the interview after observing shopping behavior makes this study quite unique. The lack of adequate signage and the lack of consumer knowledge about TFA as proven with the low responses to the intercept questions could easily account for the low number of consumers observed at the TFA display. It is a little disturbing that only 18% of those interviewed said yes when asked if they noticed the TFA seal/sign in the produce area, when 22% were observed looking at the signs. However, less than half of those looking at the signs were actually observed reading them, so perhaps the 4% who denied seeing the signs were day dreaming or thinking about something else while looking in the direction of the sign. But clearly, the appearance of the fruit must have spoken for itself due to the high percentage of consumers who actually placed the fruit in their basket (42%). When asked to respond to attitude questions on the intercept interview, recall that 57% of the consumers agreed with the statement "I look for products that say they are environmentally friendly." while 62% of those same customers agreed with the statement "I would be willing to pay more for produce grown in an environmentally responsible manner." Either there is a strong social desirability bias going on or the consumers just did not see the TFA display. On average, the consumers interviewed scored moderately high on the environmental concern scale. Again, was this a factor of strong social desirability or were these consumers really expressing how they think they would behave?

The influence of store location showed some unexpected contrasts. On average, income levels, education, and whether or not a customer stopped at the TFA display were higher for the "upper income" stores versus the "working class" type of store (i.e. the Troutdale Thriftway). However, the attitude scale scores and number of "strongly agree" responses to the statement "How food is grown affects the environment" were significantly higher for the Troutdale store versus the other four stores. Even though formal

observations were not recorded about the surrounding location of each of the five stores, the Troutdale store was the furthest away from the center of Portland and was the only store located near a National Scenic Area. Perhaps the consumers who shopped at the Troutdale Thriftway made lower incomes and had lower levels of education but preferred a more scenic and less urban place to live. All of these factors highlight how complex attitudes and behavior can be but also highlight how unique it is that positive regression results were found between observed behavior and environmental attitudes. Clearly more work needs to be done but this study provides an encouraging start.

CONCLUSIONS AND COMMENTS

A critical question for the novel technique used in this study is whether the observations made and the attitudes measured realistically capture the information necessary to evaluate the effectiveness of the TFA eco-label. The observed behaviors cannot be used to make inferences about the consumer's preferences or even purchasing behavior since the interviewer does not follow each observed consumer through the check-out. However, placing fruit in a shopping cart could be interpreted as intent to purchase. The intercept interview given immediately after the observed consumer exits the produce area provides a glimpse into the consumer's behavior by trying to tease out what was going on inside that consumer's head ... but by no means explains everything. This unique combination of observed shopping behavior and measured attitudes showed a small positive relationship between awareness of the labels, environmental concern and consumer behavior. Results suggest that environmentally conscientious consumers do care about purchasing environmentally favorable products, but that other factors, including product availability, price, convenience, and advertising, also play important roles in consumer behavior. More extensive marketing of eco-labeled products may lead to stronger links between environmental attitudes and consumer purchasing behavior. This type of evaluation will provide valuable insight into the links between attitudes expressed in a intercept interview and actual observed behavior. Analysis of this data should provide insight into why humans sometimes behave the way they do and what motivates their behavior.

REFERENCES

Ajzen, I. & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bell, P.A., Greene, T.C., Fisher, J.D. & Baum, A. (1996). Environmental Psychology. Fort Worth, TX: Harcourt Brace College Publishers.

Canadian Consumer Environment Study (1993) <http://www.agr.ca/misb/mtrends/emtrends.html>

Chaiken, S. & Stangor, C. (1987). Attitudes and attitude change. Annual Review of Psychology, 38, 575-630.

Chasteen, B. (1999). Conscience, With a Price Tag – Eco-labels and niche brands help proven stewards stay on the land. Chronicle of Community, 3 (2), 15-26. Northern Lights Institute, P.O. Box 8291; Missoula, MT 59807.

Clarke, A. (1998). SEQUOIA- Survey of Environmental Quality Universal Orientation and Individual Attitudes (unpublished scale). USDA- Natural Resources Conservation Service, Fort Collins, Colorado.

Corral-Verdugo, V. (1997). Dual ‘Realities’ of Conservation Behavior: Self-Reports vs. Observations of Re-Use and Recycling Behavior. Journal of Environmental Psychology, 17, 135-145.

Hartman, H. (1996). The Hartman Report- food and the environment: A consumer’s perspective, phase I. The Hartman Group, Bellevue, Washington.

Kaiser, F.G., Wolfing, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. Journal of Environmental Psychology

Rathje, W.L. (1984).). “Where’s the Beef?” Red Meat and Reactivity. American Behavioral Scientist, 28(1), 71-91

Rathje, W.L. (1989). The three faces of garbage: Measurements, perceptions, behaviors. Journal of Resource Management and Technology, 17(2) p. 61-65.

Werner, C.M. & Makela, E. (1998). Motivations and behaviors that support recycling. Journal of Environmental Psychology, 18, 373-386
Psychology, 19, 1-19.

APPENDIX A

Conduct interviews in the produce section of the store

❖ Did person stop at the TFA produce display?	yes	no
❖ Did person look at TFA display area and signs -- and if so, for how long? (record with a stopwatch - moment they look at area & signs, to moment they walk away)	yes (code: _____)	no #seconds_____
<i>Note: If apparent sight line is focused on TFA signage just code “r” for reading. If sight line not focused on TFA signage just code “l” for looking.</i>		
❖ Did person pick up TFA apple or pear?	yes	no
❖ Did person place TFA apples/pears in basket/shopping cart?	yes	no
Comments on customer behavior?		

APPENDIX A (continued)

CUSTOMER SURVEY FORM

Please circle the most appropriate response for each question below.

- 1) Did you notice The Food Alliance seal/sign in the produce area? *yes no*
If yes, did this seal/sign influence your decision to buy the produce? *yes no*
- 2) Have you purchased TFA labeled produce before? *yes no*
If so, what? _____
- 3) Do you look for products that say they are environmentally friendly? *yes no*

*Please respond to the statements below with following scale.
Write the number of your response to the left of each statement.*

5 = strongly agree / 4 = agree / 3 = neutral / 2 = disagree / 1 = strongly disagree

- ___ How food is grown affects the environment.
- ___ Products that claim to be environmentally friendly should be certified as such.
- ___ I would be willing to pay more for produce grown in an environmentally responsible manner.
- ___ It is important for me to know how my food is grown.
- ___ I believe there is a connection between the health of the environment around me,
and my well-being.
- ___ One of the most important reasons to conserve is to preserve wild areas.
- ___ I would support the protection of an endangered bird species, even if I were never
able to see one in the wild.
- ___ Wild plants and animals do not have a *right* to live unmolested by humans.
- ___ In this country, land pollution is not one of our serious environmental problems.
- ___ We must prevent any type of animal from becoming extinct, even if it means sacrificing some
things for ourselves.
- ___ I'd be willing to make personal sacrifices for the sake of slowing down pollution even though
the immediate results may not seem significant.
- ___ Endangered wildlife species should be protected but NOT at any cost.
- ___ It does not bother me to see natural environments destroyed.
- ___ Unique environments should be protected at all costs.
- ___ Natural ecosystems do not have a right to exist for their own sake, regardless of human
concerns and uses.

Please tell us a little about yourself: (circle appropriate response)

Number of people in your household (including yourself)? 1 2 3 4 +4

Your age: 20s 30s 40s 50s 60s 70s 80s 90s +90

Education: HS diploma some college college degree graduate degree

Income: 0-\$20K \$21-40K \$41-60K \$61-80K \$81-100K +\$100K
