



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Measuring the Benefits of an In-Store Consumer Information Program

by

Mary L. Carsky
Eastern Connecticut State University

Glen H. Mitchell
Virginia Polytechnic Institute & State University

Since 1980 the consumption of red meats has declined annually (Nix, 1984) and by the end of 1987 consumption of poultry will surpass that of red meat (*Wall Street Journal*, Sept. 1987). A significant proportion of the decline can be attributed to changing tastes and preferences along with an emphasis on fitness and weight control. The pork and beef industries are interested in reversing the trend and regaining their share of the market (Linsen, 1984). The Pork Producers Council has developed consumer information and education materials which stress the nutritional value of today's leaner pork products.

As meats have traditionally accounted for 35 percent of retail sales volume, the decline in consumption has had a negative impact on total supermarket receipts. Spurred on by the marketing efforts of the trade associations in conjunction with an infusion of promotional monies from government supported commodities groups (Morrison and Armbruster, 1983), many supermarket chains have begun to engage in consumer information programs on meat products. While it has been implied that these programs should lead to greater consumer satisfaction with supermarkets (Asker, 1982), their expansion in numbers is dependent upon the contribution to profits. If these supermarket sponsored programs are to continue, benefits will need to be demonstrated.

Objectives

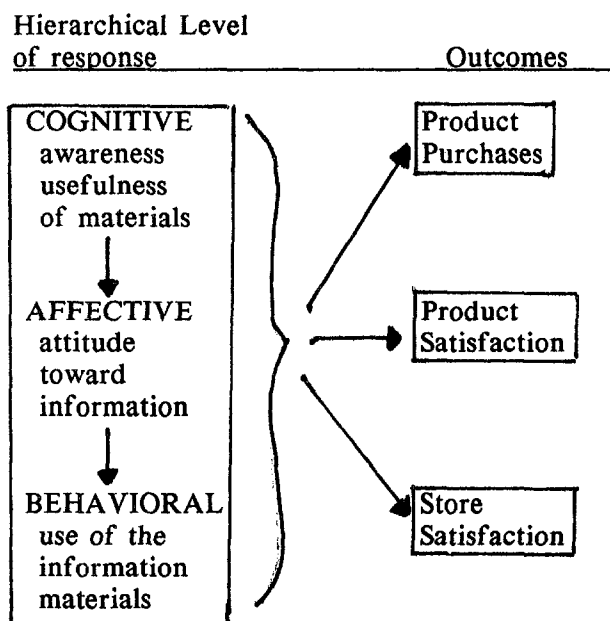
The purpose of this paper is to demonstrate the benefits of providing in-store consumer information/education programs. Specific objectives of the study are to examine the use of alternative measures for evaluating program effectiveness and to test empirically the use of these measures.

Theoretical Background

An information program should be viewed as a service of the food store rather than as a sales promotion tool. As a service, however, the effects are difficult to measure. Response to a promotion can be readily assessed at the point-of-sale terminal. Whereas a sales promotion is expected to generate short term sales increases, an information program is hypothesized to result in long run benefits (Aaker, 1982). Changes in sales are more likely to be gradual than to be tied to the current week's featured products. Several researchers (Day, 1976; Houston and Rothchild, 1980) have suggested that use or adoption of an information program is a gradual process and a hierarchy of effects model should be employed in its measurement. Day (1976) suggested that actual use of the information could not occur without awareness, comprehension, and consideration of the information first producing a change in attitude. He hypothesized that effects of the

program would include increased satisfaction with the purchase decision, the product, and the shopping environment. Actual use was not perceived to be requisite to the increased satisfaction. Aaker (1982) suggested that programs would result in improved customer satisfaction, and that satisfied customers would generate loyalty and, thus, increased profitability to the firm. Additionally, a well developed consumer information program was predicted to enhance the consumer's image of the firm. Figure 1 depicts the relationship of the hierarchy of effects to some projected outcomes of an information program.

Figure 1.
Corporate Consumer Information Program
A Conceptual Model



To the left are the cognitive, affective, and behavioral responses to the information program. Two levels of cognitive response are suggested: awareness, the first step toward use of the program; and perception of usefulness, a cognitive belief, which is a precondition to consideration of the information. Attitude is the only suggested response for the affective measure, and purchase of the

featured product added to use of the materials as a composite indicator of behavior.

Anticipated change in purchasing levels, product and store satisfaction are proposed as outcomes of an information program. These two distinct satisfaction outcomes were derived from prior research on consumer satisfaction. Oliver (1980, 1982), Day (1982) and others suggested that satisfaction is multi-stage and that satisfaction with the retail or shopping environment and with the product category are separate but interrelated components of the complex relationships of satisfaction.

Methodology

An empirical investigation was conducted to measure the relationships between response to the information program and the outcomes posited by the conceptual model. A cross sectional design was incorporated into a store intercept study. Two hundred seventy-seven shoppers were interviewed at a warehouse food store where a consumer information program, focused on meats, had been implemented one year earlier. It was a three-part program which consisted of 60-second video presentations, recipe cards (with supplementary information on meat preparation, selection, and nutrition), and brochures with extended information on the featured product.

The information program was developed by the consumer relations department of the food chain. Because multiple modes of presentation were used, the program met the criteria suggested by Aaker (1982) for an effective corporate information program. The program materials were evaluated for accuracy and completeness by two nutritionists.

The participating food store was selected because the information program focused on meats, a commodity group, and because it was a warehouse format store. Previous studies have shown that consumers generally do not perceive the meat at warehouse food stores to be high quality (Heller et al., 1984) and are generally not satisfied with the meat department in these stores.

Measurement

Multiple indicators were used to measure each of the four constructs of the conceptual model. The questions which made up the indicators for hierarchical level of response and the three outcomes of product purchasing, product satisfaction, and store satisfaction are described below.

Composite measures were used for each of the response indicators. Perception of usefulness (cognitive) and attitude (affective) were each measured by summing the response to five activity, interest, and opinion (AIO) queries and importance scales. The behavioral measure (use) consisted of 13 questions which included recall and use of the printed materials, purchase of the featured meat, and unaided recall of the current video presentation. The ability of a shopper to describe the content of the video indicated use of the information program.

Meat Purchasing was measured by three self reported measures of meat purchasing including the percentage of the meat budget spent at the store, whether this had increased or decreased and the number of meat items purchased on the interview date. Sales figures from the store were not used in the analysis because the intent was to measure the consumer's assessment or belief about the level of purchasing.

Meat Satisfaction and Store Satisfaction were assessed by three satisfaction measures. The first, an attribute scale, probed satisfaction with specific characteristics of the meat (freshness, selection) and with the store (cleanliness, assortment, etc.). The second, an anchored scale, asked to what extent this store was satisfactory compared to other stores (the best, the worst, other warehouses, etc.). The third was a single global measure of overall satisfaction. The measures used for these outcomes were based on those used in prior satisfaction research (Aiello et al., 1977; Day, 1982; Oliver, 1982).

Instrumentation

The survey instrument developed for this study was divided into two parts on the basis of method of administration. The first was a six-page self-administered questionnaire which included the items to measure satisfaction with the store and with the meat department. Also included were 21 AIO items related to food shopping and preparation. Several of these were incorporated into the attitude and perception scales. The second part was an interview schedule which queried respondents on their use of the information program, shopping habits, and demographic characteristics. In a pre-test, the multi-item scales were assessed to be reliable.

The Survey Sample

Two hundred seventy-seven shoppers were interviewed at the food store during a four-week period. Data were collected on Thursdays, Fridays, and Saturdays as 39.0 percent of consumers shop on these days (Food Marketing Institute, 1985). The offer of a token gift resulted in a response rate greater than 80 percent.

The sample represented typical warehouse food store clientele. The average household size was four persons and the largest share of shoppers interviewed was between the ages of 25 and 34 years. Fifty percent reported an average weekly food bill of \$100.00. Half of those interviewed shopped at the warehouse store once per week and half had been patronizing this store for more than three years. While 11 percent reported spending less than half their food budget (excluding meats) at the store, 29 percent reported buying less than half their meats at the warehouse store.

Results

The intercorrelations of the response variables and the outcomes are presented in Table 1. All correlations were positive and statistically significant at $p < .001$, thus indicating a strong association among the constructs of the conceptual model.

Table 1. Intercorrelations for Responses Variables and Projected Outcomes of the Consumer Information Program

Indicators	(C ₂)	(A)	(B)	(MP)	(MS)	(SS)
Cognitive (C)	0.630	0.473	0.523	0.270	0.184	0.177
Awareness (C ₁)		0.658	0.483	0.281	0.369	0.498
Usefulness (C ₂)			0.424	0.213	0.186	0.369
Affective (A)				0.298	0.180	0.142
Behavior (B)						
Meat Purchasing (MP)					0.510	0.183
Meat Satisfaction (MS)						0.494
Store Satisfaction (SS)						

Table 2. Comparison of Positive and Negative Responders to the Consumer Information Program On Projected Outcome of Meat Purchasing, Meat Satisfaction and Store Satisfaction

Response	Projected Outcome	Positive Mean Scale ^a Score	Negative Mean Scale Score	t	p ^b
COGNITIVE					
Awareness (n = 277)	Meat Purchasing	84.514	70.669	3.24	0.001
	Meat Satisfaction	29.877	28.914	1.44	0.150
	Store Satisfaction	87.927	85.924	1.74	0.082
Usefulness (n = 210)	Meat Purchasing	90.623	73.066	3.31	0.001
	Meat Satisfaction	31.019	27.692	4.54	0.000
	Store Satisfaction	91.738	81.421	8.76	0.000
AFFECTIVE					
Attitude (n = 181)	Meat Purchasing	84.391	64.574	3.79	0.000
	Meat Satisfaction	30.851	27.968	3.42	0.001
	Store Satisfaction	91.448	83.713	6.03	0.000
BEHAVIOR					
Use (n = 238)	Meat Purchasing	87.721	66.862	4.85	0.000
	Meat Satisfaction	30.339	28.244	2.92	0.004
	Store Satisfaction	88.452	85.268	2.62	0.009

^aMeat Purchasing = % of meat budget + items purchased + change in %
 Meat Satisfaction = meat attributes (3-15) + global sat. (1-5) + anchored sat. (3-15)
 Store Satisfaction = store attributes (16-80) + global sat. (1-5) + anchored sat (3-15)

^bActual p levels have been reported. p < .01 is statistically significant.

In order to assess the effects of the information program on purchasing and satisfactions, positive and negative responses to the program at each hierarchical level were compared using t-tests. Scale scores for the outcomes (defined in the note to Table 2) of shoppers who were aware of the program, perceived it to be useful, and actually used it were contrasted to those whose responses were negative. It should be noted that for the t-tests those whose responses were neutral on the multi-item measures of usefulness and attitude were excluded from the analyses. The results of the t-tests are presented in Table 2.

At the awareness stage only meat purchasing differences were statistically significant. However, at the second level of cognition, usefulness of the information materials, differences in all of the projected outcomes were statistically significant as they were on attitude toward the program and actual use. While all were significant, the effect sizes differed among the response levels.

The scale score for meat purchasing was derived from the reported measures as well as number of items purchased on the interview date. Actual purchase of the featured meat was included in the behavioral measure. Fourteen (5.1%) of those interviewed purchased the featured meat (pork roast).

Validation of the Model

To validate the model and further examine the legitimacy of the measures, additional analyses were conducted. Perception of usefulness was the singular indicator used for the cognitive measure in validation analyses as differences in awareness on the t-tests were not significant for the satisfaction outcomes.

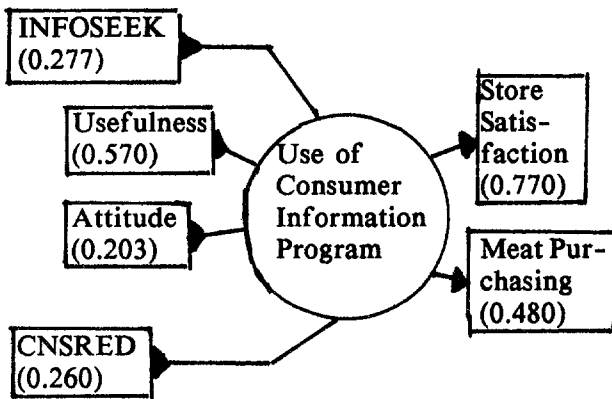
When using discriminant function analysis to ascertain predictors of response to the information program, the variables of meat purchasing, meat satisfaction, and store satisfaction did not fully explain and correctly classify those responding positively and negatively. This partial explanation was not expected as people choose food stores for a

multiplicity of reasons. Demographic and psychographic variables were entered into the analyses to identify antecedents of exposure to the program which might have moderated the responses.

The propensity of an individual to seek out information (INFOSEEK), measured by a composite of AIO items which queried respondents on the use of information related to food selection and preparation, and previous enrollment in a consumer education course (CNSRED) were identified as antecedents which could explain variations in attitude and perception of usefulness and consequent differences in satisfaction and purchasing. The addition of these to the equations resulted in raising the minimum D squared from 1.958 to 3.087 on perception of usefulness and from 0.989 to 2.160 on the attitude measure. The number of total correctly classified cases increased from 72.55 percent to 77.27 percent for usefulness and from 61.33 percent to 70.17 percent for the affective measure.

In the initial discriminant function analysis for the behavioral response to the information program, meat purchasing and store satisfaction were the identified predictors, but only 21.1 percent of negative responders (non-users) were correctly classified. Although the equation was statistically significant, the minimum D squared of 0.441 evidenced the low explanatory power of the model. INFOSEEK and CNSRED did not appreciably alter the efficiency of the model. The addition of the cognitive and affective measures enhanced the model by raising the minimum D squared to 1.459 and correctly classifying 43.1 percent of non-users with no change in the proportion of users correctly classified (95.5%). The resulting empirically tested model with standardized discriminant function coefficients is as shown in Figure 2.

Figure 2. An Empirically Tested Model For Evaluating an In-Store Information Program



Discussion and Conclusions

This study provided empirical evidence that the provision of an in-store information program can be beneficial to the program provider, but the benefit may not be apparent if traditional sales measures are used. Only 5 percent of shoppers interviewed purchased the featured meat. However, those who responded positively to the program reported higher levels of meat purchasing as well as greater satisfaction.

Previous researchers (Day, 1976; Houston and Rothchild, 1980) suggested that cognitive and affective response to information programs can yield positive outcomes in the absence of behavioral change. The data presented here evidenced this outcome. The mean scores for measures of satisfaction were higher for non-users of the information program than for negative responders on the cognitive and affective measures. Failure to use the information might be attributed to the lack of time or to a belief that one already possesses sufficient information on the topic or it might be attributed to these shoppers not having experienced the earlier stages of the hierarchy of effects.

The results of the discriminant function analysis for use of the information lent sup-

port to Day's (1976) hypothesis. The addition of the cognitive and affective measures to the equation significantly enhanced the explanatory power of the model.

The second level cognitive measure, usefulness of the information program, was the strongest predictor of satisfaction with the meat department and with the store. This could be due to the position of the cognitive measure on the hierarchy thereby serving to confirm earlier research which posited the greatest change at this stage. An alternative explanation might be that shoppers who perceived the materials to be useful believed that the store was acting in the consumer's interest rather than simply trying to promote its meat products.

Meat purchasing was highly correlated with satisfaction. Both were demonstrated to be effective measures of the outcomes of response to an information program. The relatively high intercorrelation of meat purchasing and meat satisfaction provided a manipulation check and a measure of construct validity.

Because this study was based on a cross-sectional survey design, no assumptions of causality can be made. The results of correlational tests and comparison of positive and negative responses by shoppers exposed to the same satisfiers indicate that there is an association between the provision of an in-store information program and increased purchasing along with higher levels of satisfaction.

Implications

The results of this study indicate that the provision of an information program focused on meats can be beneficial to a food store. However, immediate returns in the form of increased sales on targeted products cannot be expected. Efforts to evaluate programs should include cognitive, affective and behavioral response measures.

It is important that the providers of in-store information programs give highest priority to the usefulness of the program materials. Salient information not previously known to shoppers should be presented. For

meats salient information might include value for the dollar measured in cost per serving, alternative preparation ideas, and nutritional information. Several modes of presentation should be offered for food store information programs to appeal to a variety of segments.

Food retailers should engage in consumer information programs as these can be of particular benefit in upgrading the image of the whole store, upgrading the image of a particular product category, and increasing levels of purchasing.

References

- Aaker, David A. (1982). "Developing Corporate Consumer Information Programs," *Business Horizons* (January-February), 32-39.
- Aiello, Albert, Jr., John A. Czepiel, and Larry J. Rosenberg (1977). "Scaling the Heights of Consumer Satisfaction: An Evaluation of Alternative Measures," in *Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, Ralph Day, ed., Bloomington, IN: Indiana University, 33-50.
- "Changing Tastes: By end of This Year, Poultry Will Surpass Beef in the U.S. Diet" (1987), *Wall Street Journal*, September 17, 1.
- Day, George S. (1976). "Assessing the Effects of Information Disclosure Requirements," *Journal of Marketing* 40 (April), 42-52.
- Day, Ralph L. (1982). "The Next Step: Commonly Accepted Constructs for Satisfaction Research," in *International Fare in Consumer Satisfaction and Complaining Behavior*, R. L. Day and H. K. Hunt, eds., Bloomington, IN: Indiana University, 113-17.
- Food Marketing Institute (1985). *Trends: Consumer Attitudes and the Supermarket*, Washington, D.C.: The Food Marketing Institute.
- Heller, Walter, Len Kirsch, Mary Ann Linsen, Robert O'Neill, Larry Schaeffer, Ronald Tanner, and Ed Walzer (1983). "Competitive Dynamics in the Marketplace," *Progressive Grocer* (October), 29-52.
- _____ (1983). "Competitive Dynamics in the Marketplace, II," *Progressive Grocer* (November), 55-74.
- Houston, Michael J. and Michael L. Rothchild (1980). "Policy-Related Experiments on Information Provision: A Normative Model and Explication," *Journal of Marketing Research* 17, 432-49.
- Johnson, Mary A. (1983). "Getting Consumers to Read All About It," *Progressive Grocer* 62 (October), 105-10.
- Linsen, Mary Ann (1984). "Changing Meat Preferences: Health or Price Driven?" *Progressive Grocer* 63 (February), 99-107.
- Morrison, R. M. and W. J. Armbruster (1983). "Generic Advertising of Food Products," *National Food Review*, U. S. Department of Agriculture, Economic Research Service, NFR-23, 15-18.
- Oliver, Richard L. (1980). "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions," *Journal of Marketing Research* 17, 460-69.
- _____ (1982). "Measurement and Evaluation of Satisfaction Processes in Retail Settings," *Journal of Retailing* 57, 25-48.