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THE EFFECT OF NUTRITIONAL INFORMATION ON
ATTITUDE AND CONSUMPTION OF BUTTER

by

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THE EFFECT OF NUTRITIONAL INFORMATION ON ATTITUDE AND CONSUMPTION OF BUTTER

Abstract

This study examines the impact of print advertisements and articles containing nutritional information on consumer attitudes and behavior. It was found that nutritional information in generic print advertisements did not significantly affect attitudes and behavior intentions for butter, but that nutritional information in articles did affect attitudes and intentions.

Introduction

Health concerns and the desire for a healthy lifestyle are prompting consumers to adopt better eating habits. Trends in food consumption reflect this change. People are eating less red meat and more white meats, fruits and vegetables. The consequence of changing diets has increased the demand for some agricultural products and reduced demand for others.

Among the foods that have experienced a severe decrease in demand is butter. From 1960 to 1991, butter consumption has declined by 57%, from 7.34 kg per capita per year to 3.12 (Statistics Canada 1960-91). Butter is commonly perceived as expensive, high in cholesterol, saturated fat and calories, and often negatively implicated in studies linking heart disease to diet. Margarine, on the other hand, is perceived as less expensive, lower in cholesterol and calories, and easier to spread than butter (Goldfarb Consultants 1992).

In response to declining demand, the Dairy Bureau of Canada has been promoting butter through generic advertising campaigns. The cost of such programs ranging from \$1.5 million, in 1978, to more than \$7.1 million, in 1991. Generic print advertising is one technique, used by the Dairy Bureau of Canada, to supply nutritional information to consumers, to counteract negative dietary concerns and to increase consumer demand.

A variety of econometric studies have measured the impact of butter advertising on demand. These studies report both positive (Chang and Kinnucan 1991; Goddard and Amuah 1989; Goddard and Cozzarin 1992) and negative (Chang and Kinnucan 1992; Cox 1992) long-run butter advertising elasticities. In Cox 1992, butter advertising was unable to surmount the negative attitude consumers associate with butter even though it did induce recall of the product, or product category. Though econometric studies have investigated a variety of issues in generic advertising effectiveness, an ignored area is the effect of generic nutritional advertising on consumers' attitude and behavior.

The purpose of this study is to assess the impact that nutritional generic advertising has on consumers' attitudes and behavior. Investigations include the relative influence of vested-interest and non vested-interest nutritional information, the role of nutritional advertising in offsetting negative information and the role of nutritional advertising in enhancing positive information. The following sections present a review of previous studies, a description of the experiment used in this study, the results of the experiment, implications and limitations.

Previous Research

Literature consistently reports that consumers are more responsive to unfavorable information than to favorable information. Weinberg and Dillon (1980) found that unfavorable information is more influential than favorable information on homemakers' evaluation of generic goods and services. The proposed reasons for this differential influence include surprise, frequency of use, ambiguity, uncertainty, and differences in causal attribution. According to Kanouse and Hanson (1971), negative cues have a greater impact because they are less common than positive cues. Since unfavorable information has a more dispositional value to a product, it is discounted less and disproportionately influences impressions, beliefs and attitudes (Mizerski 1982).

Generic nutritional advertising is a message-based persuasion in which consumers are assumed to be interested in learning about the food advertised and thus will read the advertisement's nutritional message thoughtfully. This assumes a very active recipient of the communication and implicitly assumes that people "respond to information". The recipient, in responding to the information may also actively generate and rehearse their own thoughts (Greenwald 1968). These thoughts influence attitude, attitude change and behavior intentions even though they are sometimes qualitatively different from the message's content.

The impact of nutritional information on consumer attitudes has been linked to the consumer's nutritional knowledge. Nutritional knowledge affects the amount of nutritional information linked to the advertised brands and the encoding of this information. Subjects with more nutritional knowledge recall more nutritional information and are more likely to encode specific information about nutrients (Brucks, Mitchell and Staelin 1984). If the recipient has enough nutritional knowledge to make nutritional information meaningful, they will perceive nutritional information as useful and will process it. Scammon (1977) reports that providing nutritional information in advertising can affect consumers' evaluation of the nutrition associated to products and their choice of products. Brucks, Mitchell and Staelin (1984), on the other hand, found that consumers did not use nutritional information to assess the nutrition derived from a product. Furthermore, they found that increasing the amount of nutritional information deterred subjects from using the information. One explanation for this result is that consumers did not have enough nutritional knowledge to enable them to make the necessary nutritional inferences (Jacoby, Chestnut and Silberman 1977).

Research also suggests that nutritional information may have little effect on consumers' purchase decision. Taste and price were found more important to consumers than nutrition within a product class (Brucks, Mitchell and Staelin 1984). An examination of beta weights indicated that relative taste has the greatest effect on purchase intention. Relative nutrition also affects purchase preference, but the affect is much weaker than that of taste and absolute nutrition (Brucks, Mitchell and Staelin 1984). These results are consistent with Gallay (1979) who also found that taste explained twice as much variance as nutrition level but both were highly significant in influencing purchase preferences. In contrast, Kinnucan, Wenkateswaran and Hatch's (1990) investigation of the effectiveness of a catfish advertising program found that nutritional advertising influenced purchase behavior both directly and indirectly by changing attitudes toward the product. It is suggested, in the case of catfish, that nutritional advertising is effective for a low-priced, undifferentiated product, whose characteristics are not readily ascertained by pre-purchase study. In the catfish study a low-involvement hierarchy was the norm and consumers did react to the advertisements on a trial basis.

In the case of butter, it is hypothesized that nutritional advertising will improve consumer attitudes and behavior towards butter. Family physicians and other reputable sources have voiced negative nutritional messages about butter for a very long time. As a result, it is believed that media coverage of negative health and nutritional issues related to butter has reached a saturation point. It is predicted that consumers will be unaffected by additional negative nutritional information because unfavorable information is not surprising and consumers have already drastically altered their use of butter. Instead consumers are predicted to react positively to a credible message about butter's favorable attributes.

Research Methods

Type of Media

To test the above hypothesis, an after-only with control, laboratory experiment was designed. The experiment collected information on consumer attitudes and behavior after exposure to nutritional messages presented in advertisements and articles. The print medium was selected because print is commonly used for nutritional advertising of food products. Also when considering a single exposure to advertising, print advertising scores consistently higher on most message related criteria and in eliciting purchase intention (Eadie 1987).

The experiment used a brochure, similar in style to the advertising supplements from Participaction, a well-known Government institution whose focus is physical fitness. To disguise the real purpose of the research and to enhance natural, spontaneous, and effective responses the brochure contained several nutrition and fitness articles as well as advertisements from different food groups. The brochure was unobtrusive and

credible thus inducing persuasion. Allan (1990) and Weersink (1991) found that consumers perceive primary non-commercial sources of information, such as government publication, family doctors, dietitian and food labels, to be very reliable. The cover page of the advertising supplement, entitled "Healthy Choices", was unchanged and retained the name and logo of Participaction.

Design

The objective of the experiment was to determine the impact that nutritional articles about butter alone and in combination with a positive nutritional butter advertisement had on consumer attitudes and behavior. Six different brochures were created for the study, one for each experimental treatment and one for the control group. The brochure used by the control group did not contain any information specific to butter. The experimental treatments were: 1) an article containing negative nutritional information about butter, 2) the negative article and a butter advertisement containing nutritional information, 3) the advertisement, 4) an article containing positive nutritional information about butter, and 5) the positive article and the advertisement. The cover pages (pages 1 and 8) as well as the two central pages (pages 4 and 5) were the same in all versions. The article, if any, always appeared in the same position (page 3) and the butter advertisement, if any, on page 7.

The advertisement used in the experiment was a butter advertisement from the 1984 Dairy Bureau of Canada consumers' campaign. The principal message in the advertisement was that butter has the same number of calories as margarine. This advertisement was chosen because it contained extensive nutritional information while also featuring non-verbal, affect-evoking elements.

The article containing positive nutritional information, entitled "Myth Information: The Truth About Butter", stressed the equality of butter and margarine in terms of calories and fat content. The article also stated that butter contains little cholesterol in weight and that only 30% of a persons' total cholesterol comes from their diet.

The article containing negative nutritional information, entitled "Put Butter Aside: A Smart Move", emphasized the high cholesterol content of butter versus margarine. The article covered today's health concerns, explicitly linking butter consumption to blood cholesterol levels and stressing the link between diet and heart disease. Both articles included nutrient data in detailed numerical form (Muller 1978) and were written in cooperation with a nutrition expert and reviewed by a professional journalist.

Procedure

The mall intercept method was used to recruit subjects for the experiment. To minimize non coverage errors connected with the mall intercept method (Sudman 1980) the experiment took place in a medium sized city in South-Western Ontario in four different shopping centers in differing neighborhoods. Individuals, approached randomly by the interviewer as they walked by the experimental station, were asked to read each page of the 8-page brochure including the advertisements, and afterwards to fill out a questionnaire. The interviewer was instructed to approach designated respondents in the same way, from asking their cooperation to providing an explanation of the purpose of the study. Respondents were given one of the six brochures on a sequential basis. Subjects did not have a time constraint to read the brochure. A non-monetary incentive was offered. Subjects were told that the study was a University sponsored "survey" on attitudes towards food and were debriefed, upon request, after completing the questionnaire.

Measures

Data to derive measures of attitude and behavior were obtained from the responses to the questionnaire. These measures are described in the following subsections.

Overall Attitude. Overall attitude towards butter was measured by asking subjects to compare butter to margarine on a seven-point scale ranging from "much worse than margarine" to "much better than margarine". The scale was coded 1 to 7. Measuring attitudes in this manner follows the traditional model of attitudes, which assumes that the three components of attitude (cognitive, affective and behavioral) are consistent with one another and measuring any one component implies the other two. Unfortunately, this is often a naive assumption, since our overt behavior is not always consistent with our beliefs or feelings.

Multi-attribute Attitude. Realizing the limitations of an overall measure of attitudes, the questionnaire was also designed to elicit the data necessary to derive a multi-attribute measurement of attitudes. The Fishbein model (Fishbein and Ajzen 1975), the best known of a whole class of similar models sometimes referred to as multi-attribute models, conceptualizes attitudes as having only one component: affect. The model explicitly recognizes that "attitude object" may have a number of attributes that may differ in importance. The Fishbein model makes a clear distinction between intention and overt behavior. Overt behavior is determined by the individual's intentions and not from his or her attitudes. Within the framework of the Fishbein model, salient beliefs are those beliefs activated when a person evaluates an attitudinal object. The salient beliefs used in the questionnaire were those identified by the Dairy Bureau of Canada consumer tracking studies (Goldfarb Consultants 1992); price, taste, health, good for

cooking, cholesterol content, ease of spreading, fat content, calorie content, and natural product.

Three sets of questions were used to derive the multi-attribute measurement of attitude. The first investigated the strength of each salient belief for butter, and the second did the same for margarine. Responses were collected on seven-point scales with end points labeled "Very Bad" and "Very Good". A third set of questions assessed the attribute-benefit belief on a seven-point scale anchored to "Not Important", "Very Important". All the scales were coded 1 to 7. The multi-attribute measurement in this study is the average attribute benefit belief for the set of identified attributes. The attribute benefit belief for an attribute is the attribute belief multiplied by the importance of the corresponding belief. The range for the resulting multi-attribute measurements of attitude is 1 to 49.

Intention to Consume. Many factors mediate the impact that advertising has on one's purchase of a product. One factor is the degree of inventory depletion that needs to occur before one will buy more of a brand. Thus, measures of purchase intention may not be sensitive enough to capture the impact of consumption related advertising. Intention to consume, on the other hand, is a precondition to purchasing and is therefore a more sensitive measure of communication effectiveness (Wansink and Ray 1992). It is doubtful however if such an area of inquiry is amenable to exploration by direct questions. People may not be conscious of their intent to consume or may be unwilling to admit their intention if it reflects badly on their self-image.

In this study, subjects answered the hypothetical question: "A friend of yours takes you out for breakfast and the waiter brings you two slices of toast and one serving of butter. What would you do?". The supplied responses were: I would call the waiter and ask for margarine / I would eat the toast without butter / I would spread a little butter on each slice of toast / I would spread the whole serving of butter on the two slices of toast / I would spread the whole serving of butter on one slice of toast, and ask for more butter. Numerals assigned to the responds were as follows: -1 'asking for margarine', 0 'eating the toast without butter' and 1, 2, 3 for 'little butter', 'whole serving of butter' and 'asking for more butter', respectively. By assuming an interval measurement where only ordinal measurement exists, some measurement error will occur. However, this error is generally the attenuation of relations among variables and not an overestimation of results (Bohrnstedt 1970).

Demographics and Past Consumption. The questionnaire included the standard questions on personal demographics and past consumption. Past consumption was measured by asking respondents if they had eaten butter and margarine during the previous week.

Internal Validity

Several steps were taken to ensure that subjects did not perceive the true focus of the research. One, the cover page of the questionnaire reiterated the study as a "survey" on attitudes towards food, done by a University and not an advertising agency or other vested-interest institution. Two, the questionnaire included a large number of filler questions concerning other foods and general attitudes towards nutrition. Three, subjects were placed far away from each other while participating in the experiment and were asked not to talk until they had completed the questionnaire. This prevented them from understanding that different brochures were being used. Finally, the questionnaires of those subjects who appeared to be suspicious were excluded from subsequent analysis. Although the possibility of demand effects cannot be eliminated entirely, in subsequent informal debriefing, no one indicated noticing different brochures or having understood the research design.

Results

Sample Description

Prior to analyzing the results, an examination was made of the characteristics of the sample and whether it represented the population under study. The demographic variables examined include age, sex, education, and household size.

The ages of the respondents in the sample over-represent younger and middle-aged people and under-represent the older segment of the population ($\chi^2 = 53.25$, d.f. = 4, p 0.05). The ratio of males to females in the sample, however, corresponds well to census data ($\chi^2 = 0.007$, d.f. = 1, p 0.01). Male respondents account for 48.2% while female respondents account for 51.8% of the sample. The education distribution of the sample over-represents highly educated persons ($\chi^2 = 252.76$, d.f. = 2, p 0.05). The distribution in education level of the sample indicates 2% of the respondents have an elementary education, 27% have a high school education, and 71% have at least a college or university degree. The distribution in education level of the population is more even with 12% having an elementary education, 42% having a high school education and 46% with a college or university degree. Similarly, higher income classes are over-represented in the sample. Thirty-six per cent of the respondents sampled indicated a household income in excess of \$50,000. This compares to only 22% for the population.

Comparison between Experimental Groups

The second area examined prior to analyzing the results was the demographic similarity between the experimental groups and the total sample. Table 1 presents the calculated values of χ^2 for age, sex, education, income, past butter consumption, and past margarine consumption by experimental groups and overall sample. The last column of the table shows the tabulated values of χ^2 at a significance level of $\alpha = .05$ and for the appropriate degrees of freedom.

Table 1: Calculated and Tabulated χ^2 for selected Demographic Characteristics

	Control	Negative article	Negative article and ad	Ad Only	Positive article	Positive article and ad	Critical Value
Age	10.97	3.52	4.13	1.00	2.81	4.31	$\chi^2_{4,.05}=9.49$
Sex	0.33	0.43	0.12	0.03	0.07	4.12	$\chi^2_{1,.05}=3.84$
Education	1.59	0.92	0.38	0.91	0.09	0.22	$\chi^2_{2,.05}=5.99$
Income	6.20	10.21	2.03	6.24	1.52	3.87	$\chi^2_{5,.05}=11.1$
Butter users	0.03	2.50	2.70	1.32	2.56	0.43	$\chi^2_{1,.05}=3.84$
Margarine users	1.71	0.33	7.47	0.12	0.01	0.15	$\chi^2_{1,.05}=3.84$

Examination of the demographic variables; age, sex, education, and income, reveals that the observed frequencies for the experimental groups are, for the most part, in agreement with the overall sample distribution. The calculated χ^2 are smaller than the tabulated values for all experimental groups, except for the age of the control group ($p < .10$) and sex for the positive article and advertisement group ($p < .10$).

For past consumption of butter, all experimental groups have significant χ^2 at a 95% confidence level. Therefore, any difference in past butter consumption between the experimental groups is likely to occur by chance. This result is similar for past margarine consumption. The calculated χ^2 is smaller across all experimental groups except the negative article and advertisement group. In this group, margarine users account for 69% of the respondents versus 59% for the total sample.

Effects of Experimental Treatments

Tables 2 and 3 present the results of the experiment. Table 2 presents the means and standard deviations (in parenthesis) for measures of overall attitude, multi-attribute attitude and intentions to consume for each experimental group. Table 3 presents the net difference in these measures for selected groups. The statistical significance of these differences was obtained using t-tests. For each variable in table 3, the five paired group comparisons are 1) the negative article group to the control group, 2) the negative article and advertisement group to the negative article group, 3) the advertisement group to control group, 4) the positive article group to control group, and 5) the positive article and advertisement group to the positive article group.

Table 2: Dependent Variables: Experimental Groups Mean and Standard Deviations

	Control	Negative article	Negative article and ad	Ad Only	Positive article	Positive article and ad
Overall Attitude	5.03 (1.86)	3.83 (2.11)	4.00 (1.98)	4.97 (1.81)	5.53 (1.52)	5.52 (1.48)
Multi-Attribute Attitude: Butter	22.25 (7.84)	19.00 (5.75)	19.96 (6.22)	21.78 (7.18)	23.86 (7.37)	23.13 (6.46)
Multi-Attribute Attitude: Marg	22.50 (8.13)	24.27 (8.80)	24.30 (7.77)	21.49 (7.81)	21.78 (7.23)	20.58 (6.26)
Intention to Consume	1.57 (0.95)	0.97 (1.14)	1.16 (1.09)	1.62 (0.99)	1.84 (0.88)	1.95 (0.91)

Notable in table 3, the only group differences that were statistically significant were those comparing the mean attitudes and behavior of the negative article group to the control group (column 1) and the positive article group to the control group (column 4). All other differences between groups were not statistically significant. The difference in mean attitude and behavior scores was not statistically significant for the comparison of the negative article and advertisement to the negative article alone (column 2). The group exposed solely to the advertisement had slightly lower attitude scores than the control group, but the differences were not statistically significant (column 3). Similarly, the mean attitude and behavior scores for the group exposed to the advertisement in combination with a positive article was not statistically different from the group exposed solely to the positive article (column 5).

Table 3: Dependent Variables: Paired Comparisons Results (T-tests)

	(Negative article) - (Control)	(Negative article & ad) - (Negative article)	(Ad) - (Control)	(Positive article) - (Control)	(Positive article & ad) - (Positive article)
Overall Attitude	-1.20 ^a	0.17	-0.06	0.50 ^b	-0.10
Multi-Attribute Attitude: Butter	-3.25 ^a	0.96	-0.47	1.61 ^c	-0.73
Multi-Attribute Attitude: Marg	1.77 ^b	0.03	-1.01	-0.72	-1.20
Intention to Consume	-0.60 ^a	0.19	0.06	0.27 ^a	0.11

a Comparison of groups means is significant at $p < .01$

b Comparison of groups means is significant at $p < .05$

c Comparison of groups means is significant at $p < .10$

In contrast to the advertisement, the information contained in articles had a significant influence on respondents' attitude and behavior towards butter. In table 2, the mean overall attitude for the group exposed to the article containing negative nutritional information was 3.83, well below the mean attitude for the control group at 5.03. Similarly, the mean overall attitude for the group exposed to the article containing positive nutritional information was 5.53, well above the mean attitude for the control group. In Table 3, one must reject the null hypothesis of equal means in overall attitudes and intention to consume for the control group and the negative article group and the control group and positive article group.

In terms of degree, table 3 illustrates that the negative article was twice as effective in changing overall attitudes towards butter than the positive article. The mean overall attitude of the negative article group was lower than the control group by 1.20, while the mean overall attitude of the positive article group was higher than the control by only .50. A similar result was also evident for changes in behavior. Exposure to the article containing negative nutritional information caused a negative change in intention to consume butter of .60 while exposure to the article containing positive nutritional information caused a positive change in intention of .27. These results provide empirical support to the idea that people are more responsive to unfavorable information than to favorable information.

The multi-attribute attitude measurements produced similar attitudinal results. In the case of butter and margarine, one must reject the null hypothesis of equal means between the negative article group and the control group. The article containing negative nutritional information about butter had a negative influence on consumers' multi-attribute attitudes toward butter of -3.25 ($p < .01$) and a positive influence on consumers' multi-attribute attitudes toward margarine of +1.77 ($p < .05$). Similarly, the

article containing positive nutritional information about butter had a statistically significant positive influence on consumers' multi-attribute attitudes toward butter of +1.61 but did not have a statistically significant corresponding negative influence on margarine attitudes. There was insufficient evidence to reject the null hypothesis that the positive article group mean for margarine was equal to the control group.

Discussion

This study examined five situations in which nutritional information could have changed consumer attitudes and behavior intentions. Nutritional information affected attitudes and behavior intentions in only two of the five situations: 1) positive nutritional information contained in an article positively affected attitudes and behavior and 2) negative nutritional information contained in an article negatively affected attitudes and behavior. The negative impact on attitudes and behavior was almost double that of the positive impact. In the remaining three situations, the advertisement did not affect attitudes or consumption intentions.

The traditional overall measure of attitudes and the multi-attribute measure of attitudes provided consistent results. Using both these measures, there was insufficient evidence to reject the null that the group exposed to the advertisement and the control group had similar attitudes. These results differ from those found for catfish by Kinnucan, Wenkateswaran and Hatch (1990) where nutritional advertising was a determinant of attitudinal responses. In this study, nutritional butter advertising did not stimulate a positive change in consumers' attitudes towards butter nor did it induce the retrieval of counter arguments or the retrieval of negative thoughts as suggested by Cox (1992). In this study, vested interest advertising was unable to change current attitudes or enhance or offset the attitudes created by the nutritional information found in the non vested interest articles. It would seem that the nutritional message contained in the advertisement was either discounted or simply rejected by the respondents without retrieving or rehearsing counter arguments. This result is consistent with previous research that evaluated the perceived credibility of nutritional information in advertising as quite low when compared to the credibility of nutritional information from other sources (Allan 1990; Weersink 1991).

Consumer attitudes and intentions did respond to non vested interest nutritional information. The magnitude of that response was greater for unfavorable information than for favorable information. This is consistent with past research for generic goods and services (Weinberg and Dillon 1980), but contradicts our expectation that the impact of unfavorable nutritional information about butter has reached a saturation point. Instead, the evidence presented in this study suggests that unfavorable nutritional information about butter still has a significant impact on attitudes and behavior and is stronger than that of favorable nutritional information. Positive attitudes toward margarine were also found to be more strongly held than positive attitudes toward butter. Attitudes towards margarine were not significantly negatively

affected by the positive butter information but were significantly positively affected by the negative butter information.

Practical Implications

The results of this study provide insight into whether and how nutritional advertising affects consumers' attitudes and behavior intentions. Evidence from this study for butter suggests that very little can be done with generic nutritional advertising to reduce the damage to attitudes and behavior caused by negative information. It is therefore advisable that food marketers carefully monitor the publication of negative information. The nutritional advertisement did not have a significant impact on consumers' attitude towards butter and margarine. Furthermore, since no significant effects were found for intention to consume, expenditures for generic nutritional advertising do not seem justifiable for butter.

If consumers perceive nutritional information as partial or vested, it is discounted by discrediting the source of the communication. An alternative advertising strategy may be to target nutritional information towards family doctors and/or dietitians. Since consumers perceive information from doctors and dietitians as highly credible these campaigns may be more successful in changing attitudes and behavior. Such an approach could focus on the high level of trans-fatty acids contained in most commercial margarine. Trans-fatty acids are a relatively new concern in nutritional sciences, one in which the health value of butter is comparable to some margarines on the market.

Limitations and Suggestion for Future Research

The study has a number of limitations. One, although the mall intercept approach is convenient it has a weakness. Even though obtaining representation of the population was a primary concern when sampling, the sample still represents highly educated, wealthier young people.

Two, the unusual level of involvement limits the external validity of the study to central route processing situations. Participants were instructed to read every page, including the ads, of the brochure and to fill out a questionnaire. The nature of an experiment together with these instructions created an extremely involving situation and artificial environment.

Three, the results of the experiment extend only to the copy portion of the nutritional message. It is possible that the graphics and artwork could have produced an effect when coupled with the nutritional message to reduce or enhance the credibility of the

nutritional claim. Future research is necessary to examine how the nutritional message and graphics (or peripheral clues) affect consumer responses.

Four, the research results apply only to those foods that, like butter, have been negatively affected by the large stock of warranted and unwarranted negative nutritional attention. The results from this research suggest the need to undertake similar experiments for other commodities with positive or neutral attitudes. For example, why does favorable and unfavorable information produce such different results for butter as opposed to margarine?

The final limitation lies in the measurement of behavior. In this study the behavior measurement toward butter used a question that focused on the occasional use of butter as a spread. The intent to consume butter in other situations remains open as does the effect of nutritional information on actual behavior, persistence of attitude change and intention to consume on subsequent behavior. Additional research is also needed in the examination of the effect that nutritional advertising has on other variables such as price, taste and cooking.

REFERENCES

- Allan, Shelley (1990), "Consuming Fears", Master of Agricultural Business Report, University of Guelph.
- Bohrnstedt, George W. (1970), "Reliability and Validity Assessment in Attitude Measurement", in *Attitude Measurement*, Gene F. Summers, ed., Chicago: Rand McNally, 81-82.
- Brucks, Merrie, Andrew A. Michell and Richard Staelin (1984), "The Effects of Nutritional Information Disclosure in Advertising: An Information Processing Approach", *Journal of Public Policy and Marketing*, 3, 1-25.
- Chang, Hui S. and Henry W. Kinnucan (1991), "Advertising, Information and Product Quality: The Case of Butter", *American Journal of Agricultural Economics*, 73 (November), 1196-203.
- Chang, Hui S. and Henry W. Kinnucan (1992), "Performance of the AIDS Model for Advertising Evaluation: Results Based on Canadian Data", in *Commodity Promoting and Advertising*, Henry W. Kinnucan, Stanley R. Thompson and Hui S. Chang, eds., Ames, Iowa: State University Press, 165-80.
- Cox, Thomas L. (1992), "A Rotterdam Model Incorporating Advertising Effects: The Case of Canadians Fats and Oils", in *Commodity Promoting and Advertising*, Henry W. Kinnucan, Stanley R. Thompson and Hui S. Chang, eds., Ames, Iowa: State University Press, 139-64.
- Eadie, Wayne P (1987), "Measuring the Sales Effectiveness of Advertising in Magazines: a Primer on Landmark Studies", in *How to Measure the Sales Effectiveness of Advertising*, Transcript Proceedings, New York: The Advertising Research Foundation, June 18.
- Fishbein, Marthin and Icek Ajzen (1975), *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Reading, MA: Addison-Wesley.
- Gallay, R. (1979), "Food Preference as a Function of Nutrition, Price, and Perceived Taste", in *Educators Conference Proceedings*, Neil Beckwith et al., eds., Chicago: American Marketing Association.

- Goddard, Ellen W. and Alexander K. Amuah (1989), "The Demand of Canadians Fats and Oils: A Case Study of Advertising Effectiveness", *American Journal of Agricultural Economics*, 71, 741-49.
- Goddard, Ellen W. and Brian Cozzarin (1992), "A Preliminary Look at Advertising Beef, Pork, Chicken, Turkey, Eggs, Milk, Butter, Cheese, and Margarine in Canada", in *Commodity Promoting and Advertising*, Henry W. Kinnucan, Stanley R. Thompson and Hui S. Chang, eds., Ames, Iowa: State University Press, 120-38
- Goldfarb Consultants (1992), *Ad Tracking Study*; A Research Report for the Dairy Bureau of Canada, (unpublished).
- Greenwald, Anthony G. (1968), "Cognitive Learning, Cognitive Response to Persuasion and Attitude Change", in *Psychological Foundations of Attitudes*, Anthony G. Greenwald, Timothy C. Brock and Thomas M. Ostrom, eds., New York, Academic Press: 147-70.
- Jacoby, Jacob, Robert W. Chestnut and William Silberman (1977), "Consumer Use and Comprehension of Nutrition Information", *Journal of Consumer Research*, 4, 119-28.
- Kanouse, David E. and Reid L. Hanson Jr. (1971), "Negativity in Evaluations" in *Attribution: Perceiving the Causes of Behavior*, Edward E. Jones et al., eds., Morristown NJ: General Learning Press, 47-62.
- Kinnucan, Henry H., Meenakshi Venkateswaran and Upton Hatch (1990), *Effects of Catfish Advertising on Consumers' Attitudes, Purchase Frequency, and Farmers' Incomes*, Alabama Agricultural Experiment Station Bulletin, 607 (November), Auburn University.
- Mizerski, Richard W. (1982), "An Attribution Explanation of the Disproportionate Influence of Unfavorable Information", *Journal of Consumer Research*, 9, 301-10.
- Muller, Thomas E. (1985), "Structural Information Factors Which Stimulate the Use of Nutrition Information: A Field Experiment", *Journal of Marketing Research*, 22 (May), 143-57.
- Scammon, Debra L. (1977), "'Information Load' and Consumers", *Journal of Consumer Research*, 4, 148-55.

Statistics Canada, *Apparent Per Capita Food Consumption in Canada, 1960-1991*. (Previous to 1979, Catalogue was entitled "Apparent Per Capita Domestic Disappearance of Food").

Sudman, Seymour (1980), "Improving the Quality of Shopping Center Sampling", *Journal of Marketing Research*, 17 (November), 423-31.

Wansink, Brian and Michael L. Ray (1992), "Estimating an Advertisement's Impact on One's Consumption of a Brand", *Journal of Advertising Research*, 3 (May/June), 9-16

Weersink, Jeff H. (1991), "The effects of Nutritional Information on Consumers' Attitudes and Consumption", M.Sc. Thesis, University of Guelph.

Weinberger, Marc C. and William R. Dillon (1980), "The Effects of Unfavorable Product Rating Information", *Advances in Consumer Research*, 7, 528-32.