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THE EFFECT OF NUTRITIONAL INFORMATION ON ATTITUDES AND CONSUMPTION:
THE CASE OF YOGURT

by

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The Effect of Nutritional Information on Attitude and Consumption: The Case of Yogurt

Abstract

The purpose of this study was to establish an empirical link between information exposure, attitudes and behaviour. To do this, an after-only with control field experiment was undertaken using a print medium. The data resulting from the experiment was analysed using group comparison and regression analysis techniques. Both methods provided statistically significant results. From the group comparisons, it was found that the group exposed to the nutritionally positive advertisement when compared to the control group had a higher overall attitude toward the healthiness of yogurt consumption and a higher consumption level of yogurt. The group exposed to the article containing negative nutritional information had a lower overall attitude toward the healthiness of yogurt, fewer intentions of buying yogurt but had a higher consumption level when compared to the control group. From the regression analysis it was found that the advertisement affected consumption only by changing attitudes whereas the article affected consumption both indirectly through changes in attitude and directly by changing consumption. Surprisingly, the net affect of the negative nutritional information in the article was an increase in consumption. The implication is that information exposure in the form of articles appears to have a more direct impact on behaviour than does information exposure from advertisements. Unfortunately, exposure to an article does not necessarily imply recall of the content of the article, thus the intended impact on consumption, from exposure to the article, may be counter productive.

Introduction

Consumers, today, are more conscious of their diet and the effect it has on their health than they have been in the past. Trends in food consumption over the past fifteen years reflect this change. People are eating less red meat and more white meats, fruits and vegetables (Statistics Canada 1990). The consequence of this health awareness is an increased demand for some agricultural products (oat bran, for example) and a reduced demand for others (beef, eggs, butter).

In response to decreasing demand, many Canadian agricultural marketing boards and agencies have undertaken massive advertising campaigns. In 1992, the Beef Information Centre spent over \$2.7 million in advertising, the Canadian Egg Marketing Agency spent \$2.9 million and the Ontario Milk Marketing Board spent over \$9.6 million. A common strategy in these campaigns is to increase or maintain sales by incorporating positive nutritional information about their product into their

advertisements. The premise is that exposure to positive nutritional information may alter negative consumer attitudes and increase consumption. This particular advertising strategy leads to two important research questions: Does exposure to nutritional information affect nutritional attitudes? Does a change in nutritional attitude translate into a change in consumption?

The methodological issue raised by these questions is how to establish a link between exposure to nutritional information in advertising and in articles, changes in nutritional attitude and corresponding changes in behaviour. If a causal relationship can be established, the conclusion may be that providing positive nutritional information through advertising is money well spent by agricultural marketing boards. If however, the causal relationship is weak, alternative campaign strategies may be more appealing. A potential weakness of the nutritional advertising strategy is that consumers may perceive nutritional information provided in advertising to lack credibility.

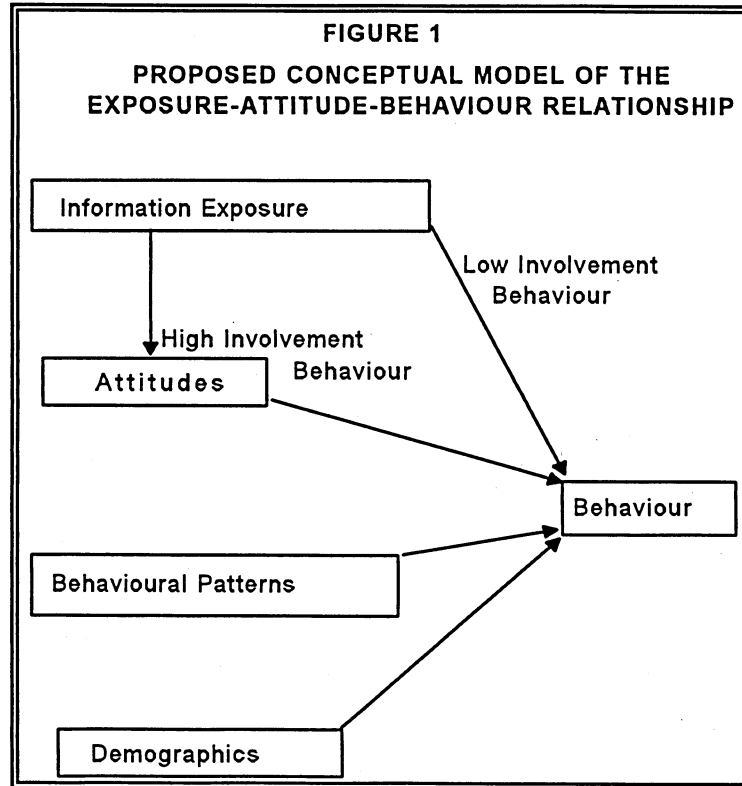
To study how information exposure affects nutritional attitudes and behaviour, an after-only with control field experiment was undertaken. The experiment examined consumer attitudes and behaviour after exposure to an article containing negative nutritional information about yogurt and after exposure to an advertisement containing positive nutritional yogurt information. A control group, which was exposed to neither the article nor the advertisement, was used to control extraneous variation. The resulting data was analysed using group comparison and regression analysis techniques.

The ensuing section presents the model that formed the basis for the field experiment. This is followed by a description of the experiment and a discussion of the data generated by the experiment. The next two sections present empirical results followed by conclusions.

Model

Before establishing an empirical link between exposure to nutritional information, changes in nutritional attitude and changes in behaviour, a theoretical framework of consumer behaviour was postulated. The framework postulates that behaviour is affected by information exposure, attitudes, behavioural patterns, and demographics. It is suggested that attitudes, behavioural patterns and demographics directly affect behaviour, while information exposure can affect behaviour directly and indirectly through changes in attitudes. The manner in which information exposure affects behaviour is said to be predictive of the level of behavioural involvement (Figure 1). If information exposure affects behaviour directly, behavioural involvement is said to be low. If information exposure affects behaviour indirectly by changing attitudes first,

behavioural involvement is said to be high. This framework follows from the model of advertising response postulated by Kinnucan and Venkateswaran (1990).



Behavioural involvement is the level of involvement or cognitive thought processing the person undertakes before taking an action. A high level of involvement is said to exist if a person considers the consequence of their actions before the action is carried out. A low level of involvement is said to exist if very little or no thought is taken before the action is carried out (Krugman 1966, Petty and Cacioppo 1981). It is postulated then, that the stronger the relationship between information exposure, a person's attitudes and their behaviour, the higher is their level of involvement in that activity. Conversely, the weaker the relationship between information exposure, a person's attitudes and their behaviour the lower is their level of involvement.

Advertisers that are attempting to change consumer attitudes and ultimately behaviour through positive nutritional messages are assuming that the information-attitude-behaviour relationship is strong and that consumers are highly involved in their purchasing activity. If, on the other hand, consumers take a low involvement approach to buying food, nutritional advertising campaigns may be successful in changing attitudes but ineffective in changing behaviour. Since the ultimate objective of advertising is to change behaviour, traditional advertising strategies may be more effective under such circumstances. Alternatively, if nutritional

advertising is pursued under such circumstances, higher involvement behaviour would have to be encouraged using parallel messages such as encouraging health conscious diets, introducing recipe suggestions or by monetary savings with coupon.

Experimental Design

Yogurt was used in the experiment because it is purchased frequently, has wide popular appeal and growing consumption (Statistics Canada 1989). The only deterrent in choosing yogurt for this experiment is it carries a generally positive nutritional perception. Use of a neutral commodity, in terms of nutritional attitudes, would have been preferred so as to have unbiased results. Unfortunately, there are very few nutritionally neutral agricultural and food commodities.

The nature of the experiment was to randomly distribute a booklet that contained nutritional information about yogurt among its regular sections and to later survey consumer awareness, attitude, and consumption. The booklet was an advertising supplement from PARTICIPaction¹. The booklet contained nutrition and fitness articles as well as advertisements from various food groups. Using this as the base, three different booklets were printed and distributed. One booklet contained a yogurt article with a negative nutritional message. A second booklet contained a yogurt advertisement with a positive nutritional message, and a third booklet contained both the negative yogurt article and the positive yogurt advertisement. In the booklet containing both the advertisement and the article, the article followed two pages behind the advertisement.

The article entitled "Is Yogurt Really That Nutritious?" emphasised the sugar, fat and cholesterol content of yogurt. The tone of the article stated that levels of these ingredients in yogurt were comparable to levels found in ice cream (Dairy Science, University of Guelph). Since it is typically thought that ice cream is high in calories, fat and cholesterol, readers of the article were expected to form a negative attitude toward the nutritional content of yogurt after reading the article. The written style of the article and the PARTICIPaction logo on the cover of the nutrition and fitness booklet contributed to the credibility of the negative nutritional information contained in the booklet.

The yogurt advertisement was a full page Danone advertisement for no fat Plain Yogurt. The intent of the advertisement was to contradict the content of the article, specifically the fat content of yogurt. Readers of the advertisement were expected to have a positive attitude toward yogurt and its nutritional content after observing the advertisement.

¹ PARTICIPaction is a well recognized, highly regarded non profit organization.

Guelph was chosen as the survey site because of the ease in distributing the booklets and undertaking the interviews. From census information, seven census tracts were randomly selected. Within each tract, neighbourhood blocks were used to separate households into one of the three experimental groups receiving booklets and the control group that did not receive a booklet. A total of 975 households for each experimental group was used in the experiment. From a preliminary survey in March 1990, it was deduced that only 50% of the people could be expected to be home when the questionnaire was dropped off, 65% ate yogurt, and 30% look at advertising mail. Using these percentages together with an 80% response rate, it was expected that 75 questionnaires per group would be completed for a final sample size of 300 households.

Three weeks after the booklets were dropped off, households were surveyed to determine their attitudes towards and consumption of yogurt. A questionnaire was used to collect information on consumption of yogurt, attitudes towards yogurt and nutritional attitudes in general, reliability and use of nutritional information, recognition and recall of the advertisement and article, and demographics. The questionnaire was self administered and took about 10 minutes to complete².

A single questionnaire, administered after exposure to the nutritional information, was preferred to a before and after design because a single questionnaire eliminates testing effects. A before measurement was not taken because it could have affected the person's response to the after exposure questionnaire by making the consumer more aware of their nutritional attitude towards yogurt.

Data

A major obstacle in establishing an empirical link between exposure to nutritional information, changes in nutritional attitude and corresponding changes in behaviour is finding accurate measures for exposure, attitude and behaviour.

Two common measures of information exposure are recall and recognition. Recognising information is being able to say that some information has been seen before. Recalling information requires the reproduction of some of the information seen before (Baggozi and Silk 1983). One of the major factors influencing recognition and recall is whether the information is verbal or visual (Krugman 1977). Recall, for example, is typically very low for graphic advertisement because it is difficult to put visual memory into words. Recall scores are typically much higher for written articles.

² Three weeks after the booklets were dropped off, an interviewer approached the home and asked to speak with the person who did most of the grocery shopping. Along with the questionnaire the respondent was given a brown envelope and instructed to place the completed questionnaire into the envelope and place it outside the door to be picked up the following day.

To determine exposure levels to the yogurt advertisement and article contained in the distributed booklets both recall and recognition data were used.

The general response rate of completed questionnaires was quite high. Completed questionnaires totalled 1359 and were relatively evenly distributed across the four experimental groups (326, 351, 392 and 390 for the control, ad, article, and ad and article groups, respectively). Within these samples, however, the recognition and recall rates for the article and advertisement were quite low. For the group receiving the positive advertisement, one fourth of the respondents remembered seeing a yogurt advertisement recently and only 10% recalled the content of the advertisement. For the group receiving the negative article, only 3% of the respondents remembered seeing an article about yogurt but almost all of them recalled the content of the article. Although low, these response rates document the notion that verbal information is more readily recalled than visual information. Of the respondents that recognised the visual advertisement, only 20% could recall its content. Of the respondents that recognised the written article, 90% were able to recall its content.

Two approaches to measuring attitudes were used in this study. One approach was the use of a semantic differential question to measure the underlying attitudes toward yogurt. The question asked respondents to rate the healthiness of yogurt on a seven point scale from 'very unhealthy' to 'very healthy'. The second approach used a multi-attribute attitude scale. This scale combines semantic differential questions about the healthiness of eight individual ingredients contained in yogurt with questions that ask respondents how much of each ingredient they feel yogurt contains. The ingredients examined were cholesterol, fibre, butterfat, protein, sugar, calories, vitamins, and preservatives. This approach follows from Fishbein (1963) who postulated that an attitude is made up of a number of attributes and beliefs and a person's overall attitude toward an object is a function of the person's attitudes toward attributes believed to make up the object.

Using the entire sample population of 1359 respondents and the single dimension scale, the mean attitude toward yogurt was 5.2, slightly higher than mid point on the scale at somewhat healthy (4) and lower than the maximum value (7), indicating yogurt as very healthy. Older respondents felt yogurt was healthier than either younger or middle-aged respondents, as did female respondents compared to male respondents. Similar results were observed using the multi-attribute attitude score approach.

Two approaches were also used to measure changes in behaviour. The first approach was to ask respondents how much yogurt (in millilitres) had been purchased in the past few weeks. The second approach was to use a measure of intention to purchase yogurt. This latter approach assumes that a person's intention to perform a certain behaviour is highly correlated with a person's actual behaviour. Fishbein's behavioural intentions models are based on this assumption (Fishbein 1967) and have been used to predict consumer behaviour with a high degree of reliability (Teas and Perr 1989) in

brand purchases of toothpaste (Wilson et al 1975), laundry detergent (Lutz 1977) and choice of credit union (Ryan and Bonfield 1980).

Again using the entire sample population of 1359 respondents, actual consumption of yogurt was higher on average for the female respondents than for the male respondents as was consumption by middle aged respondents when compared to younger and older respondents. Actual consumption was also found to be higher in higher income households. Finally, over half the respondents stated that they intended to buy yogurt on their next shopping trip.

Group Comparisons

The purpose of this study is to establish a relationship between exposure, attitude and behaviour. The first approach used to do this was to identify and compare the attitude and consumption patterns found in each experimental group to the control group. If significant differences in attitude and behaviour are found between the control group and the experimental groups, a conclusion can be drawn that these differences are the result of exposure to different nutritional information. This conclusion can be drawn because the experimental and control groups were randomly selected from like households.

Table 1 presents a comparison of the average overall attitude score found by type of exposure and level of retention. The first row is the average yogurt attitude score of those respondents that recalled the positive advertisement and negative article. The second row is the average yogurt attitude score of those respondents that only recognised the advertisement and article. The third row is the overall average attitude score for yogurt for the three experimental groups: those that were exposed to an advertisement, the control group, and those that were exposed to an article. Unfortunately, the recognition and recall rates of the experimental group that received both the advertisement and the article were too small to be included in the analysis.

For both groups, recall and recognition, the average overall attitude score was consistent with the type of exposure received. Consumers that were exposed to the positive advertisement felt yogurt was healthier than consumers that did not receive exposure to yogurt information. Likewise, consumers that had no exposure to yogurt information felt yogurt was healthier than those that were exposed to the negative article about yogurt (Table 1). This would suggest initially that both the positive advertisement and the negative article had their intended effect in changing readers' attitudes about the healthiness of yogurt.

Table 1: Overall Yogurt Attitude After Exposure To Different Nutritional Messages

	Type of Exposure		
	Exposure to Positive Ad	No Exposure	Exposure to Negative Article
Recall	5.47	-	4.75
Recognition	5.65	-	4.36
Overall Attitude	5.6	5.22	4.52

Note: A score of 7 means that yogurt was thought to be very healthy, 4 was somewhat healthy and a score of 1 meant that yogurt was very unhealthy. All the experimental group figures are significantly different from the control group figures at the 90% level or above.

These same results were also found using the multi-attribute attitude score (Table 2). Again those that were exposed to the positive advertisement felt yogurt was healthier than did those not receiving exposure to yogurt information than did those exposed to the negative article about yogurt. These results provide strong evidence that exposure to nutritional information does influence nutritional attitudes.

Table 2: Multi-Attribute Attitude After Exposure To Different Nutritional Messages

	Type of Exposure		
	Exposure to Positive Ad	No Exposure	Exposure to Negative Article
Recall	0.17		-6.71
Recognition	-0.41		-13.56
Multi-attribute Attitude	-0.25	-1.45	-10.56

Note: The more negative a score the more unhealthy yogurt is thought to be. Across the recognition category, the experimental groups are significantly different from the control group figures at the 90% level or above. Across the recall category, the experimental groups are significantly different from the control group at the 80% level.

Similar group comparisons were also undertaken for yogurt consumption (Table 3) and intentions to buy yogurt in the future (Table 4). Beginning with actual consumption, it was discovered that those exposed to the positive advertisement consumed significantly more yogurt than did the control group. The group that recalled the positive advertisement consumed the most yogurt at 1936 ml compared to 1124 ml for

the control group. Although the group exposed to the negative article also consumed more yogurt than did the control, only consumption for the recall group was found to be statistically higher than the control group. While it can be concluded that the positive advertisement may have resulted in increased yogurt consumption, it cannot be concluded that the negative article resulted in a decrease in yogurt consumption. In fact, for those that recalled the negative article, consumption was higher.

Table 3: Yogurt Consumption After Exposure To Different Nutritional Messages (ml)

	Type of Exposure		
	Exposure to Positive Ad	No Exposure	Exposure to Negative Article
Recall	1,936	-	1,781
Recognition	1,679	-	1,268
Overall Attitude	1,753	1,124	1,484

Note: All experimental groups are significantly different from the control group figures at the 95% level, except the article recognition group.

The second measure used to examine changes in behaviour was intentions to buy yogurt. In this table, the percentage of respondents in each group that stated they intended to buy yogurt the next time they are shopping is given. The group having the highest percentage of respondents intending to buy yogurt is the group that recalled the positive advertisement (87%). This is the same group that was found to have the highest consumption level of yogurt. The second highest percentage of respondents intending to buy yogurt was the group that recognised the positive advertisement (79%). This was followed by those who recognised the negative article, the control group and those who recalled the negative yogurt article.

With the exception of the article recognition group, behaviour measured by intentions to purchase appears to be more consistent with the type of exposure received than was behaviour measured by actual consumption. One explanation for this result may be the degree of error that surrounds past consumption estimates. Answering a simple, yes or no question, whether you intend to buy yogurt the next time you are shopping is much easier than estimating how much yogurt in millilitres was bought in the past few weeks.

Table 4: Percentage Intending To Purchase Yogurt After Exposure To Different Nutritional Messages

	Type of Exposure		
	Exposure to Positive Ad	No Exposure	Exposure to Negative Article
Recall	87%	-	57%
Recognition	79%	-	75%
Overall Attitude	82%	70%	70%

Note: All experimental groups are significantly different from the control group at the 90% level or above using the Mann-Whitney test for the difference of means.

Thus far, the relationships gleaned from these simple group comparisons are compelling. It is suggested by these results that the group exposed to the positive advertisement when compared to the control group have a higher overall attitude toward the healthiness of yogurt consumption and have a higher consumption level of yogurt. The group exposed to the article containing negative nutritional information, on the other hand, have a lower overall attitude toward the healthiness of yogurt and fewer intentions of purchasing yogurt.

Regression Analysis

The results in the previous analysis suggest that a relationship does exist between information exposure, attitudes and behaviour. To measure the direction and extent to which information exposure affects attitudes and behaviour, two ordinary least square regressions were undertaken. The first regression examined the factors affecting consumption and the second regression examined the factors affecting attitudes. The set of explanatory variables used in both regressions included information exposure variables, demographic characteristics, consumption behaviour measures and nutritional attitude statements. The actual price of yogurt and the price of its substitutes and complements were not included in these regressions. The results from these regressions are presented in Table 5 and Table 6.

The explanatory variables that were found to be significant at the 10% level in explaining yogurt consumption (Table 5) were recognition of the negative article, sex, frequency of yogurt purchases, whether yogurt was bought the last time shopping and the consumer's overall attitude toward yogurt. The variables that were found not to be significant at the 10% level in explaining yogurt consumption were recall of either the advertisement or article, recognition of the advertisement, age and income, intended

future purchases of yogurt, butterfat, cholesterol or calorie content and the multi-attribute attitude.

Table 5: Regression Results: Factors Affecting Consumption Of Yogurt

Independent variables	Dependent variable: consumption	
	All variables	Only significant variables
Constant	-2542.57 (.0001)	-1507.39 (.0000)
Information exposure		
Ad recognition	199.34 (.5784)	
Ad recall	102.61 (.7246)	
Article recognition	833.64 (.0751)	1119.07 (.0004)
Article recall	993.78 (.1122)	
Demographics		
Sex	321.00 (.0620)	248.04 (.0296)
Age	82.77 (.1409)	
Income	64.59 (.1674)	
Behavioral variables		
Purchase frequency	295.13 (.0000)	334.70 (.0000)
Purchase last shopping	626.97 (.0007)	450.72 (.0001)
Purchase next shopping	135.02 (.4913)	
Attitude variables		
Amount of butterfat	147.66 (.8281)	
Amount of cholesterol	-104.04 (.1774)	
Amount of calories	27.61 (.7255)	
Overall attitudes	151.99 (.0080)	132.20 (.0002)
Multi-attribute attitude	5.89 (.2250)	
Adjusted R ²	0.22	0.24
Number of Cases	433	801

Focusing on the significant variables, all these variables had a positive impact on consumption. Yogurt consumption responds positively if yogurt was bought the last

time shopping, when it is frequently purchased and the more nutritious it is perceived to be. Yogurt consumption also responds positively to female respondents. An unexpected result from this regression is that yogurt consumption also responded positively to recognition of the negative article. This would imply that the article was ineffective in conveying its negative message towards the nutritional value of yogurt. Either people did not read the article or they did not interrupt it as a negative nutritional message.

The result in this regression that leads us to the second regression is that yogurt consumption was found to be positively affected by the overall nutritional attitudes toward yogurt. Thus the second regression examines the underlying factors affecting the formation of overall yogurt attitudes.

In Table 6, the explanatory variables that were found to be significant at the 10% level in explaining overall consumer attitudes about the healthiness of yogurt were ad recognition and article recall, sex, frequency of yogurt purchases, intended future purchases of yogurt, and the multi-attribute attitude. The positive coefficient on the sex variable means that yogurt was thought to be healthier by female consumers. Overall attitudes were also positively affected by future intentions to buy yogurt and frequent yogurt consumption. Overall attitudes are also affected positively by higher multi-attribute attitude scores.

Noteworthy in this regression result is the manner in which the advertisement and article variables affect attitudes. Overall attitudes about the healthiness of yogurt were found to be negatively affected by recalling the negative nutritional article and positively affected by recognition of the positive advertisement. This in turn has a corresponding impact on yogurt consumption.

For a single exposure to the positive advertisement, the impact on overall attitudes is an increase in the overall attitude variable of .41 (from table 6). This increase in overall attitudes, from table 5, translates into an increase in yogurt consumption of 54 ml (.41 times 132). For a single exposure to a negative article, the impact on overall attitudes is a decrease in the overall attitude variable of .72. This translates into a decrease in yogurt consumption of 95 ml. This decrease, however, is offset by the fact that recognition of the article increases consumption by 1119 ml. Thus the net effect of one exposure to the negative article is in fact an increase in yogurt consumption of 1024 ml.

This result may explain why consumption of yogurt in the earlier analysis was found to be higher for both the exposed groups than for the group that received no exposure. To increase consumption, it would appear that any exposure to yogurt information (whether positive or negative) is better than no exposure at all. Furthermore, exposure in the form of an article appears to have a more direct and positive impact on behaviour than does an advertisement. This may be because articles are typically thought to be

a more credible source of information than advertisements even if the articles are not well read.

Table 6 : Regression Results: Factors Affecting Toward Yogurt

Independent variables	Dependent variable: overall attitude	
	All variables	Only significant variables
Constant	3.5847 (.0000)	2.8261 (.0000)
Information exposure		
Ad recognition	.4455 (.0149)	.4151 (.0018)
Ad recall	-.2180 (.3824)	
Article recognition	.4813 (.2294)	
Article recall	-1.2796 (.0165)	-.7179 (.1225)
Demographics		
Sex	.6876 (.0000)	.6474 (.0000)
Age	.0270 (.5721)	
Income	.0192 (.6298)	
Behavioral variables		
Purchase frequency	.1387 (.0282)	.1133 (.0172)
Purchase last shopping	-.2027 (.1957)	
Purchase next shopping	.2845 (.0878)	.3791 (.0139)
Attitude variables		
Amount of butterfat	-.0341 (.5537)	
Amount of cholesterol	-.0917 (.1615)	
Amount of calories	-.0960 (.1484)	
Multi-attribute attitude	.0130 (.0012)	.0163 (.0000)
Adjusted R ²	0.17	0.15
Number of cases	440	529

Conclusion

The purpose of this study was to establish an empirical link between exposure, attitude and behaviour. The method used to do this was an after-only with control field experiment. Yogurt was the commodity of choice. One control group and two experimental groups, which received nutritional information, were used in the experiment. The information was contained in a nutrition and fitness booklet, dropped-off to randomly selected homogeneous households. One experimental group received a booklet with a positive nutritional yogurt advertisement. The other experimental group received a booklet with a negative nutritional yogurt article. The control group did not receive a booklet. After three weeks, a self-administered questionnaire was distributed. The questionnaire was used to collect data on nutritional attitudes toward yogurt and actual yogurt consumption. The data from the returned questionnaires was analysed using group comparison and regression analysis techniques. Both methods provided statistically significant results.

The group comparison results found significantly different attitude scores and behavioural measurements among the different information exposure groups. The group exposed to the positive advertisement when compared to the control group had a higher overall attitude toward the healthiness of yogurt consumption and had a higher consumption level of yogurt. The group exposed to the article containing negative nutritional information had a lower overall attitude toward the healthiness of yogurt and fewer intentions of buying yogurt but had a higher consumption level than the control group.

The regression analysis results indicate that nutritional information exposure is an important factor in explaining consumption. The way in which exposure affects consumption, however, depends on the manner in which the information is received. For those that recognised the positive nutritional message in the advertisement, consumption increased indirectly through a positive increase in overall yogurt attitude. In a like manner, for those that recalled the negative nutritional message in the article, consumption decreased indirectly through a decrease in overall yogurt attitude. In terms of the model of behaviour proposed, for those that recalled the article and recognised the advertisement, purchasing yogurt is a high involvement activity, one in which consumption is affected by attitudes and attitudes are affected by the information they are exposed to.

Counter to this result, the impact of the negative article was also found to increase consumption directly for those that recognised but did not recall the content of the article. In the case of yogurt, a commodity that carries a generally positive nutritional perception, the mere fact of seeing an article about the nutritional content of yogurt increased yogurt consumption. In terms of the proposed model of behaviour, for those that recognised of the negative article, purchasing yogurt would appear to be a low

involvement behaviour, one in which attitudes are not re-examined prior to purchasing but where purchasing is stimulated directly by information exposure.

These results suggest, in the case of yogurt, that while advertising campaigns that incorporate positive nutritional information may have some success in maintaining and increasing sales by changing attitudes, a better strategy may be to publish nutritional information in the form of credible articles. This may not be the case for a commodity that carries a generally negative nutritional perception. In fact, for commodities that carry a negative nutritional perception, exposure to positive nutritional articles, if unread, may decrease consumption. Research similar to this study is necessary to determine whether this would be the case. This study does suggest, however, that positive nutritional messages in advertising can affect consumption through changes in attitudes. Additional research, of course, using different products, different messages, and different mediums is necessary to validate the results found in this study.

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Nutritional Attitude Survey

As part of a research project we are examining consumer's attitudes towards foods, especially yogurt. We would appreciate your help in completing this questionnaire. It should only take about 10 minutes of your time. Your response is completely confidential; your name is not identified with your questionnaire in any way.

To complete the questionnaire, read the questions carefully and circle the number that corresponds to your answer. Please answer as many questions as you can. Once you have completed the questionnaire, place it in the brown envelope and put it in your mailbox or outside your door, where it will be collected at the predetermined time.

If you have any questions concerning this questionnaire, feel free to call me at 821-7684. Your cooperation is greatly appreciated. Thank You.

Jeff Weersink

Yogurt

The first group of questions of this questionnaire concern your yogurt purchases. People who eat yogurt can either eat regular yogurt or frozen yogurt. We will first look at your purchases of regular yogurt.

● How often do you normally purchase yogurt?

- more than twice a week
- once a week
- once every two weeks
- once every three weeks
- once every month
- less than once a month

● The last time you were grocery shopping did you purchase yogurt?

- yes
- no
- don't remember

● The next time you go grocery shopping do you intend to purchase yogurt?

- yes
- no
- don't know

● Approximately how much yogurt have you purchased in the past few weeks?

Please put the number of containers of each size you have purchased in the appropriate space. (1 serving = 175ml, one large container = 1L)

_____ (175 mls)

_____ (500 mls)

_____ (litres)

● In the past few weeks how has the amount of yogurt you purchased changed?

(please check one)

- increased a lot
- increased some
- not changed
- decreased some
- decreased a lot

● How many people in your household, other than yourself, eat yogurt?

(answer only if applicable)

_____ (# of people)

● Do you usually purchase regular yogurt or 'light' yogurt?

('light' means lower butterfat and lower sugar content than regular yogurt)

- regular
- light
- both
- don't know

● In the past few weeks have you eaten more light yogurt than regular yogurt?

- yes
- no
- don't know

● Please rate the following factors on how important they are in your decision to purchase yogurt. Circle the importance of each on the following scale.

	not very important		very important		
price	1	2	3	4	5
fat content	1	2	3	4	5
calorie content	1	2	3	4	5
cholesterol level	1	2	3	4	5

● What do you consider yogurt as? (please check as many as you wish)

- a snack
- a dessert
- part of breakfast
- part of lunch
- part of dinner

Frozen Yogurt

The next few questions deal with frozen yogurt. If you do not eat frozen yogurt then check off the appropriate space for each question.

● How often do you normally purchase frozen yogurt?

(either in a grocery store or in a specialty yogurt shop)

- more than twice a week
- once a week
- once every two weeks
- once every three weeks
- once every month
- less than once a month
- never

● Approximately how much frozen yogurt have you purchased in the past few weeks?

(Please put the number of containers of each size you have purchased.)

- 1 cone = 175 mls)

_____ (175 mls)

_____ (500 mls)

_____ (litres)

_____ none

● In the past few weeks how has the amount of frozen yogurt you purchased changed?

(please check one)

- increased a lot
- increased some
- not changed
- decreased some
- decreased a lot

Nutritional Attitudes

The next section of the questionnaire deals with your nutritional attitudes towards yogurt and how much of certain ingredients that you feel yogurt contains.

● Overall how healthy do you feel yogurt is?

(Please indicate your feeling on the following scale.)

Very
Unhealthy

Somewhat
Healthy

Very
Healthy

1

2

3

4

5

6

7

● What effect do you feel each of the following may have on your health?
 (Please use the following scale and circle the appropriate number.)

	Be Very Detrimental to my Health			Have No Effect on my Health	Improve my Health a Lot		
	-3	-2	-1	0	+1	+2	+3
cholesterol	----- ----- ----- ----- ----- ----- -----						
fibre	----- ----- ----- ----- ----- ----- -----						
butterfat	----- ----- ----- ----- ----- ----- -----						
protein	----- ----- ----- ----- ----- ----- -----						
sugar	----- ----- ----- ----- ----- ----- -----						
calories	----- ----- ----- ----- ----- ----- -----						
vitamins	----- ----- ----- ----- ----- ----- -----						
preservatives	----- ----- ----- ----- ----- ----- -----						

● How much of the following do you feel yogurt contains?
 (Please use the following scale and circle the appropriate number.)

	Contains None		Contains Some			Contains A Lot	
	0	1	2	3	4	5	
cholesterol	----- ----- ----- ----- ----- ----- -----						
fibre	----- ----- ----- ----- ----- ----- -----						
butterfat	----- ----- ----- ----- ----- ----- -----						
protein	----- ----- ----- ----- ----- ----- -----						
sugar	----- ----- ----- ----- ----- ----- -----						
calories	----- ----- ----- ----- ----- ----- -----						
vitamins	----- ----- ----- ----- ----- ----- -----						
preservatives	----- ----- ----- ----- ----- ----- -----						

General Attitudes

The next section of the questionnaire asks your feelings about some general attitude statements.

- For each of the following statements please circle the number that best represents the amount of your agreement or disagreement.
(Please use the scale beside each statement and circle the appropriate number.)

	Definitely Disagree	Neutral / Do not Know	Definitely Agree	5	
I purchase yogurt every time I go shopping.	1	2	3	4	5
My family expects me to purchase yogurt. (answer only if applicable)	1	2	3	4	5
I purchase yogurt because it is nutritious.	1	2	3	4	5
I purchase yogurt because it tastes good.	1	2	3	4	5
I am very conscious of nutrition when shopping.	1	2	3	4	5
I am fairly knowledgeable of the health affects of different foods.	1	2	3	4	5
I am trying to eliminate foods which contain a lot of fat from my diet.	1	2	3	4	5
I make a special effort to keep up on the latest nutritional information.	1	2	3	4	5
I am concerned about the amount of cholesterol in my diet.	1	2	3	4	5
If I hear that a food may cause health problems I reduce my consumption of that food.	1	2	3	4	5

Sources of Nutritional Information

The next two questions concern your feelings about various sources of nutritional information.

- How would you rate the following in terms of providing reliable nutritional information?

(Please use the scale beside each source and circle the appropriate number.)

	Very Unreliable			Very Reliable		Don't Know
Family Doctor	1	2	3	4	5	
Magazine/Newspaper Advertisements	1	2	3	4	5	
Magazine/Newspaper Articles	1	2	3	4	5	
Radio / TV Advertisements	1	2	3	4	5	
Radio / TV Programs	1	2	3	4	5	
Food Labels	1	2	3	4	5	
Government Publications (eg Food Guide)	1	2	3	4	5	

- How would you rate the following in terms of the extent to which you use of them to obtain nutritional information?

(Please use the scale beside each source and circle the appropriate number.)

	Never Use			Use A Lot		Don't Know
Family Doctor	1	2	3	4	5	
Magazine/Newspaper Advertisements	1	2	3	4	5	
Magazine/Newspaper Articles	1	2	3	4	5	
Radio / TV Advertisements	1	2	3	4	5	
Radio / TV Programs	1	2	3	4	5	
Food Labels	1	2	3	4	5	
Government Publications (eg Food Guide)	1	2	3	4	5	

The following questions deal with the articles and advertisements about yogurt which you may have seen in the past few weeks.

● Have you read any articles containing information about yogurt in the past few weeks?

- yes
- no
- don't remember

(if yes - then continue below, if no - then go to the last question in this column)

● What did the article say about yogurt?
(briefly)

● Did you feel this information was positive or negative?

- positive
- negative
- don't remember

● Did you receive any of the following in the mail during the past month?
(Please check beside the ones you have received.)

- a grocery store supplement
- a booklet with nutritional and fitness information in it
- coupons to purchase yogurt on sale
- any other nutritional information (please specify)

● Do you remember seeing any yogurt advertisements in a magazine in the past few weeks?

- yes
- no
- don't remember

(if yes - then continue below, if no - then go to the next page)

● What brand was it for?
(Please check beside the ones you have seen.)

- Light n' Lively (Sealtest)
- Danone
- Nordica (Gay Lea)
- Silhouette
- Yoplait
- Beatrice
- Generic
- don't remember

● Did any of these advertisements tell how much fat, cholesterol, or calories the yogurt contains?

(Please check off any that you can remember.)

- Light n' Lively (Sealtest)
- Danone
- Nordica (Gay Lea)
- Silhouette
- Yoplait
- Beatrice
- Generic
- don't remember

Classification

Finally here are a few questions to help us interpret the information you have given us. For this section, please answer as many questions as you can. Remember, this information is confidential.

- Into which of the following age categories do you fall?
(please check one.)

- 15-24
- 25-34
- 35-44
- 45-54
- 55-64
- over 65

- If there is more than one member in your household, how many of these people fall into each of these age categories?

- ___ under 5
- ___ 5-9
- ___ 10-14
- ___ 15-24
- ___ 25-34
- ___ 35-44
- ___ 45-54
- ___ 55-64
- ___ over 65

- Please indicate your sex.

- male
- female

- What is your marital status?
(please check one.)

- single
(never married)
- married (excluding
separated)
- divorced/separated
- widowed

- Which of the following would best describe your highest level of education?

(please check one)

- public school
- high school
- university/college
- other (please specify)

- What is your households estimated total annual income before taxes and deductions? (please check only one)

- under \$10,000
- \$10,001-\$15,000
- \$15,001-\$25,000
- \$25,001-\$35,000
- \$35,001-\$50,000
- \$50,001-\$75,000
- \$75,001-\$100,000
- over \$100,000

Thank you for your time and assistance,
it is greatly appreciated.

Please place the questionnaire back in the envelope and put it
in your mailbox in preparation for pickup.