The Value of the Term 'Organic' in Messaging as a Driver of Product Acceptance in Older vs. Younger Consumers

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Abstract
We present the highlights of a database dealing with consumer responses to concepts about 29 good-for-you foods and beverages. Consumers evaluated systematically varied test concepts, with different messages about the features of foods and beverages. The elements of the concepts ranged from what was in the food, to emotional responses to the food, along with specific health-and-wellness features. We compare the data from two groups (individuals age 60+ versus individuals age 20-30). across these topics. These groups differ, especially in their response to endorsements from professional organizations about 'good for you'.

Introduction – The notion of wellness management and Food as 'good for you'

The concept of functional foods, containing specific physiologically active components, originated in Japan. It was a means of improving the health of the nation

while reducing the drain on the national economy caused by escalating health costs (Farr, 1997). In recent years, functional foods have increasingly become part of our American menu. Derivatives of cranberries, tomatoes, soybeans, oats and other foods have been connected to specific health benefits, ranging from the prevention of particular cancers (Hovde et al, 2007) to the reduction of blood cholesterol (Leathwood et al, 2007).

There have been several developments in the field of functional foods. Generic food products have been supplemented with healthful ingredients (e.g. orange juice with calcium and vitamins). In addition, newly branded food products, with explicit health claims, have also been introduced in the market, e.g., yogurt with pro-biotic bacteria that improve digestion, margarines that lower cholesterol or fermented drinks that affect our metabolism. Furthermore, the agro-food industry is developing a second generation of genetically modified (GM) foods that can offer functional health benefits to consumers. Finally, consumer concern regarding possible adverse health effects of foods produced using intensive farming methods has led to considerable interest in organically-produced crops, a special type of functional foods.

Market derivatives of functional foods follow an explosion in scientific and technical advances lead by biotechnology that, among other things, have begun to find links between nutrition and healthy living (Kalaitzandonakes, 2000). Bhaskaran and Hardley (2002) state that issues regarding personal and national health are extremely important because of the financial cost and human suffering involved. The American Dietetic Association supports regulation regarding information concerning health properties of foods. Functional foods, as a new phenomenon, need to be further examined with regard to their influence on buyer behavior.

Many adult consumers generally recognize the linkage between nutrition and health. Organic food buyers consider themselves more responsible for their own health and are more likely to undertake preventive health actions than the general population. Wholesomeness, absence of chemicals, environment friendliness, and a better taste are often cited primary reasons to buy organic functional foods (Shifferstein& Ophuis, 2002). Often consumers are willing to adjust their diet in order to improve their personal health (Kalaitzandonakes, 2000). One may assume that young healthy people will not be as engaged in healthy foods. On the other hand, Hansen (2005), reported that even adolescents, who may have less health concerns than adults, are increasingly involved with their health and appear to be interested in functional foods.

Contrary to the foregoing ‘idealistic’ response to nutrition and health, Nutbeam and Harris (1999) studied drivers underlying the choice of food. They reported that the most important drivers were not health and good-for-you claims, but rather the more conventional ones, such as taste, nutrition, cost, convenience and lastly, weight control. These drivers better predicted foods consumption. A study performed by the American Dietetic Association (1998) showed similar nutritional concerns, *per se*, were of less relevance to most people than were taste and cost.

Consumer knowledge and the 'driving factors'

Not all adult consumers are equally informed about functional foods or sensitive to the specific linkages of nutrition and health. Larue et al (2004) reported that many consumers will avoid GM foods, regardless of the presence of functional health properties. Lack of awareness of the concept of functional foods and their benefits is a barrier to their wide adoption (Armstrong et al, 2005; Gracia and De Magistris, 2008). Armstrong, Farley, Gray and Durkin (2005) state that there is indeed a growth potential for this industry. However, in order to expand the health-enhancing foods market, the industry needs to establish an actionable consumer segmentation and relevant product positioning for the different segments.

Marketing communications regarding functional foods have a strong message to convey both in providing information and for positioning products. Such communication must play a larger, more central role to overcome two shortcomings regarding information about functional foods. The first shortcoming is that technical information regarding functional foods has been given without thought about what people want to know or what people actually do (Griffiths, 2002). The second is that providing unduly detailed information generates the risk of information overload, which results in consumer indifference or loss of confidence regarding their choice of foods. To overcome these, the communication component should be responsive to the consumer perspective. This requires precise and strategically crafted communications that signal the functionality of a food while support the benefits.

The 'appropriate messaging' can vary. Previous studies have examined the relative importance of different messaging factors (Bruhn, 2008; Cardello et al, 2007; Leathwood et al, 2007) and found that the most important factor affecting consumption was the ***perceived risk*** associated with the technology of processing foods. Larson and Grunert (2003) reported that the use of different *processing methods* is an important determinant of consumers' perceptions of the healthiness of functional foods. There appears to be widespread perception amongst consumers that more natural methods result in foods of higher nutritional quality. Gracia and De Magistris (2008) claim that information on organic foods is crucial to expanding consumer demand and consumption. This divergence of results means that if consumer perceptions regarding the health benefits of organic foods are to be supported, then more knowledge and organizing principles are needed to augment that which is currently available (Williams, 2002; Gracia and De Magistris, 2008). .

The Contribution of this study

Following recent studies (Armstrong et al, 2005; Griffiths, 2002; Taylor& Smith, 2004)that call for examining the segmentation and positioning of functional food products as an important subset of foods as a whole, we segment mindsets regarding functional foods in terms of the nature of the messaging that they permit.

This study makes three specific contributions.

First, the analysis responds to calls of recently publicized reports to segment communication messages. We compare the data from two groups (individuals age 60+

versus individuals age 20-30) concerning features of foods and beverages– responses from what was in the food to emotional responses, to specific health-and-wellness features.

Second, it expands the existing knowledge on organic functional foods, examining the effect of the term '100% organic' as a messaging for quality of functional foods.

Third, the approach creates a new method for studying the mind of the consumer who considers foods. When researchers investigate foods, either they investigate one food in depth or many foods superficially, asking 1-2 questions about each. This current study comes from a different intellectual heritage, which looks both in depth and broadly.

The study uses experimental design of ideas, or conjoint analysis, executed with many different products, in a systematized manner that allows for across-food and within-food comparison of ideas. The underlying rationale is that by creating a bank of elements or pieces of knowledge about a single product, by varying these elements in a systematic way, and getting responses to combinations, the researcher learns how each of the elements drives the response. In a conjoint study, it is not unusual to work with 20-50 elements across categories of foods. For each category, we mix and match elements to make hundreds of test concepts, test these concepts among consumers, and identify what specific elements drive the responses. By working with mixtures of communication messages rather than single elements, the researcher forces the respondent to integrate the information from different sources, and trade off the different messages. It is almost impossible in a conjoint analysis of this type for responses to be politically correct, because the elements are not treated one-at-a time. The mixture strategy prevents the respondent from adopting a simplistic, politically correct, biased strategy to answering.

Propositions of this study

The first proposition examines the measure of latent interest of old adults versus young adults in functional foods by the distribution itself as well as by the ‘additive constant’ statistic across foods. The second proposition examines the performance of a specific common term '100% organic' as a persuader of consumption across foods and ages.

This paper focuses on three specific analyses using this database:

1. Age distribution of respondents of different ages as a measure of latent interest in ‘good for you’ foods.
2. The additive constant across 21 foods and across ages as a measure of interest in the food itself when positioned as ‘good for you’.
3. Performance of the term 'organic', a commonly used descriptor to denote quality and ‘good for you’ across foods and ages

Method

Multi-product databases – the It! approach

Around the year 2000, advances in Internet-based research made it possible to do conjoint studies rapidly and cost-effectively. Internet-based systems (e.g., IdeaMap.Net®; Moskowitz, German & Saguy, 2005) allowed a researcher to create a conjoint study, load it onto the Internet with its own URL, invite respondents to participate, create models showing how elements drove ratings, and then download the data effortlessly a few days later. Furthermore, advances in experimental design allowed the researcher to develop a different experimental design for each respondent, ensuring that there would be no biases due to the selection of the particular combinations. This was the foundation of mind-set databases.

In 2001, Moskowitz and Beckley took the conjoint analysis system one step further by creating a set of studies of the same basic structure, albeit for different foods (Beckley & Moskowitz, 2002). Each study in the set comprised the same number of concept elements (4 silos of 9 elements each), with each of the elements having a specific raison d'etre. Where possible, the exact same element would appear in each study at the same location in the test concept (e.g., descriptions first, brands last). This similarity of basic structure allowed for understanding how different elements or messages work within a single food, and how they compare across foods. The earliest versions of these databases dealt with foods and beverages. One set in particular, dealing with 'good for you' messaging, will be the focus of this paper

Applying the approach to 'good for you' foods

We report here on a database with 21 food categories we called Healthy You! The objective of the database was to determine what types of messages appeals to the consumers for different foods. The messages come from different categories. Examples of these categories appear in Table 1.

Table 1: Examples of message categories

Primary benefits
The delicious, classic flavor of your favorite tea, with the perfect amount of lemon or milk, and maybe a little sugar
A crisp, light and refreshing cup for any time of day
Made with the finest tea leaves
Caffeine free
Nutritional benefits
Provides more calcium than a glass of milk
Provides essential minerals your body needs, including potassium, magnesium, and zinc
Contains essential omega-3 fatty acids, which may reduce your risk of heart disease
Just one glass provides important cancer protective benefits

Emotional Benefits
So quick and easy
A brew you feel good about serving your family
Fills that empty spot in you…just when you want it
Such pleasure, knowing you're drinking something healthy

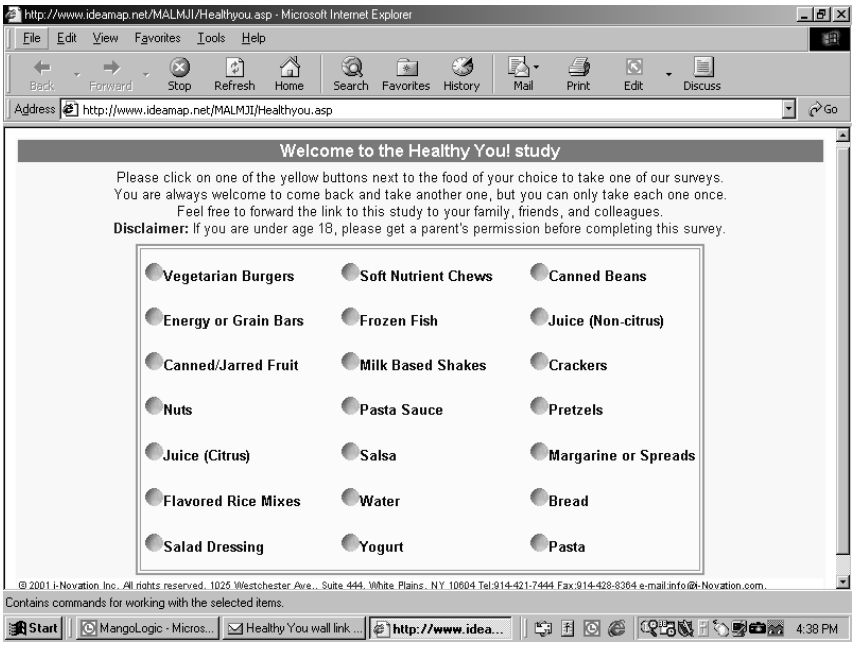
Each study comprised 36 elements, with nine elements in each of four silos. The elements were designed to be as similar as possible across different foods, subject to changes because of the nature of the food. In many cases the same element was appropriate for each food. One of the elements was the phrase 'organic', present in the different studies. It is the performance of this phrase across the different foods and beverages that is the focus of this paper.

The rationale for silos and elements is purely bookkeeping. Although in the analysis all of the 36 elements will be treated as independent variables, it is important in the creation of test concepts to ensure that the elements are both statistically independent of each other, and do not contradict each other. The statistical independence (orthogonality) is ensured by an algorithm that assigns elements to concepts so that the elements are statistically independent of each other. The algorithm avoids collinearity by not assigning any element from a specific silo to some of the test concepts (the so-called zero condition). This strategy ensures that all elements in a silo are truly independent of each other, and that one cannot predict the value of the nth element from knowing the value of the remaining n-1 elements.

Running the study

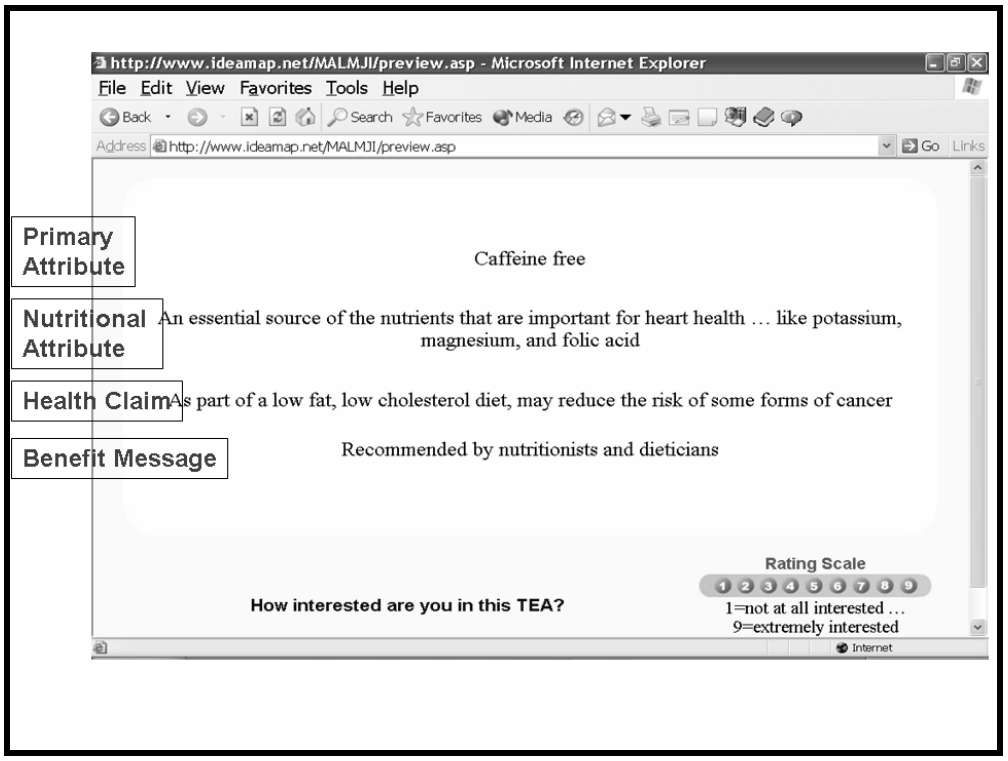
The respondents were selected from a database of individuals who had previously agreed to participate in internet-based studies. These United States resident respondents were part of the panel created by Toronto, Canada based Open-Venue. Respondents were sent an e-mail invitation giving a little bit of information about the study (e.g., that the topic was 'good for you' foods), but were told nothing else. The respondent was told to either click on the embedded link in the email or to copy and paste the link in the Internet Explorer browser window. In either case, the respondent was led to a 'wall' showing the available studies (see Figure 1). The arrangement of the different studies was set up so that the bottom right studies were the most populated and the top left studies were the least populated. Over the course of seven days some of the studies were hidden from the respondents, to ensure that less popular studies would be chosen.

Figure 1: Wall showing the available studies for a respondent who clicked on an embedded link in the email.



A respondent who participated in a specific study, after clicking the appropriate button in Figure 1, was shown an introductory screen which gave some details about the project, specifically the general overview ('good for you' foods and beverages), followed by information about how to use the scale. Afterwards, the respondent was led directly into the concept evaluation, where he tested 60 different, systematically varied concepts. The concepts comprised 2-4 elements, set up in bullet points, similar to the concept shown in Figure 2. The names of the silos were not presented in the actual evaluation, however, but appear in the left Figure 2 as an aid to understanding the nature of a test concept.

Figure 2: Example of a test concept, showing the silo to which the element belongs



After evaluating the 60 concepts, which were unique combinations created for that subject, the respondent completed a detailed self-profiling classification, asking about geo-demographics, and health concerns. For our analysis, we will look at the ratings of two groups selected from these respondents – respondents ages 60+ and those, ages 20-29, respectively. From this comparison of two different groups, at opposite ends of the age range, we can get a sense of what messaging 'works' for older respondents and, specifically, the performance of the term 'organic'.

Modeling responses

Each respondent evaluated a unique set of 60 concepts arranged by a fractional factorial experimental design (Moskowitz & Gofman, 2004). Each concept element appeared three times in the 60 combinations and was absent 57 times. The design was set up to allow individual-level models using regression analysis.

The ratings on the 9-point scale were first transformed to a binary scale, with ratings of 1-6 transformed to 0 to denote lack of interest in the concept. Ratings of 7-9 were transformed to 100 to denote interest in the concept. The conversion to a binary scale changes the focus from intensity of interest in the concept to membership in one of two groups for that particular concept for that respondent – concept rejecter or concept accepter. This analysis of responses as binary variables (accept/reject) follows the conventions of market research, with focus on the membership in a class, rather than on intensity of feeling. For the rest of the paper the data from this binary response will be referred to as the 'interest model'.

After the binary transform, the data from each respondent was fitted by a regression model of the form:

Interest = k_0 + k_1(Element A_1) k_2(Element A_2)… k_{36}(Element D_9).

The regression model returns the additive constant, k_0,
and the individual coefficients, k_1 - k_{36}.

We can interpret the additive constant, k_0, as a baseline interest in the product without the presence of elements. Clearly, all concepts had at least two elements, so that the additive constant is an estimated parameter emerging from the OLS (ordinary least squares) regression analysis. The additive constant is an estimate value which can be defined as the conditional probability of a respondent being interested in the product, even in the absence of elements.

The 36 coefficients, k_1 – k_{36}, are the impact values or utilities of the 36 separate elements. The coefficient can be interpreted as the additive conditional probability of a concept being rated as interesting (e.g., 7-9) if the particular element is added to the concept. Norms from previous studies suggest that:

15 + corresponds to extremely impactful statement
10-15 corresponds to a very important statement
5 – 10 corresponds to a significant statement
0 – 5 correspondents to a statement that is probably irrelevant
Negative corresponds to a statement that actually drives away interested respondents

Participation rate – a measure of *latent* interest

The participation of an individual in a particular study can be taken as a measure of their latent interest, or passive involvement, in the food itself. That is, in studies of this type, people do not usually participate in studies whose topics they do not like. We cannot look at the actual number of older versus younger respondents across foods, because we often removed some of the products from the wall in Figure 1 until the studies for the less popular foods had more respondents participating.

The total number of respondents for each of the studies was engineered to be approximately equal. Nonetheless, for each food we can look at the balance of older versus younger respondents. Are they equal, or do older respondents congregate relatively more densely around same products? Within each row on the left side of Table 1, we see the particular food, the base size, and then the proportion of respondents ages 60+, and then the proportion of respondents in the sample ages 20-29.

Although the total number of respondents was approximately equal (about 250 per study), the composition of the respondents varied dramatically. Older responders participated far more frequently in studies about margarine spread (21%), canned or jarred fruit (18%), nuts (17%), soup (16%), and far less frequently in studies about chews, chocolate or water (5% - 6%). Thus, there is a substantial variation in the proportion of older versus younger respondents who are interested in the 21 foods and beverages.

The additive constant – a measure of *basic* interest

The additive constant may be interpreted as the conditional probability of a person saying he is interested in the concept if no elements were present. As noted above, the additive constant is estimated from the pattern of an individual's reactions to the 60 test concepts. We interpret the additive constant as a measure of basic interest in the food topic. More technically, it is the proportion of respondents who would rate the concept 7-9 in the absence of any element. Thus, looking at Table 2 we see that chocolate bar has an additive constant of 45. This 45 means that about 45% of the respondents who participated in the chocolate study would rate the concepts as 7-9 in the absence of elements. Rather than this being latent interest or curiosity, the interest we deduce from the additive constant is the interest in the food once the respondent has behaviorally declared himself interested by participating. Older respondents are simply more polarized in their basic response to the different foods.

For the total panel, the additive constant varies over a range of 150%. The lowest constant is the 36 for margarine spread while the highest is for pretzels. We see that there are strong age effects as well. We have indexed the additive constant, so we can see how the older and younger respondents react. The older respondents show a very high index for chocolate bar, yogurt breakfast cereal, and pretzels. All these index 150% or higher. Older respondents show much less basic interest to non-milk based shake and to non-citrus juices. The indices here are at 60% and 58%. Thus, at the concept evaluation stage, we see very strong differences by older respondents across foods. Older respondents differentiate among foods in terms of their likelihood to accept food concepts. We see less range among the younger respondents, meaning that the younger respondents show less food-to-food variation in their likelihood of assigning a high positive number to the concepts.

Table 2: Composition of respondent panel and the additive constant corresponding to basic interest in the product without the contribution of elements that communicate specifics

People participating in a study – a measure of *latent* interest (sorted by age 60+)

	Total	A60+	A20-20-29 Age
Margarine spread	246	21%	7%
Canned or jarred fruit	240	18%	15%
Nuts	250	17%	8%
Soup	243	16%	14%

The additive constant – a measure of *basic* interest (sorted by age 60+)

	Total	A60+	A20-20-29
Chocolate bar	45	170%	80%
Yogurt	40	159%	77%
Cold breakfast cereal	36	153%	95%
Pretzels	51	150%	98%

Frozen fish	241	15%	10%	Pasta sauce	40	146%	84%
Peanut butter	245	14%	11%	Nuts	53	125%	95%
Bread	250	13%	17%	Peanut butter	43	124%	53%
Coffee	248	12%	7%	Frozen Meal	39	124%	61%
Frozen Meal	241	12%	12%	Milk	44	119%	67%
Crackers	249	11%	14%	Crackers	39	119%	80%
Milk	248	10%	19%	Frozen fish	39	116%	61%
Tea	248	10%	15%	Canned or jarred fruit	46	113%	94%
Pasta sauce	241	10%	17%	Tea	48	112%	95%
Cheese	241	10%	18%	Coffee	41	111%	81%
Vegetarian burger	241	10%	20%	Pasta	41	111%	111%
Citrus juice	249	9%	19%	Margarine spread	34	110%	93%
Yogurt	246	9%	17%	Citrus juice	49	109%	82%
Non-citrus juice	246	9%	27%	Soup	43	109%	75%
Salad dressing	244	9%	14%	Water	42	108%	100%
Energy / Grain Bar	240	9%	18%	Chews	38	107%	97%
Cold breakfast cereal	246	8%	14%	Cheese	49	105%	87%
Milk based shake	242	7%	24%	Flavored rice mix	43	101%	94%
Pasta	241	7%	22%	Salad dressing	38	95%	111%
Pretzels	239	7%	15%	Bread	38	94%	114%
Salsa	244	6%	16%	Salsa	41	91%	97%
Flavored rice mix	243	6%	16%	Energy / Grain Bar	38	90%	93%
Chews	241	6%	23%	Vegetarian burger	38	90%	132%
Water	245	5%	18%	Milk based shake	42	60%	98%
Chocolate bar	247	3%	24%	Non-citrus juice	48	58%	103%

How does 100% organic play

Today's consumer is bombarded with messaging about natural, good for you, etc. concepts. One of the most common messages in one or another form is 'organic'. The element '100% organic', when associated with different foods, generates a variety of reactions among the respondents. In Table 3, we see the impact or utility value for the term for the total panel (all respondents) and then for the two key groups. We have sorted the utility values by the older respondents, ages 60+. Keep in mind that the term '100% organic' appeared against many different backgrounds and other elements, so what we are seeing is the net impact of the term, when its contribution is factored into the drivers of the overall interest model.

The term '100% organic' performs quite well among older respondents for only three foods and beverages: Energy/Grain bar, Vegetarian burger, Tea, respectively. The same term '100% organic' does not do well with chocolate. For the most part, the term plays only a modest role, but we do see that it is food-sensitive- specific. The marketer cannot put the label on all products and expect an equal reaction. The same food-specificity, but with a different pattern of foods, holds for the younger respondent, ages 21-29. The total panel shows the 'regression towards the mean', as the effects by age cancel themselves.

Table 3: Utility value (coefficient in the regression model) for the term '100% organic' by total panel and by age

		Age	Age
100% organic	Total	60+	20-29
Vegetarian burger	8	7	5
Pasta sauce	2	-3	7
Crackers	2	-10	5
Cheese	1	0	7
Non-citrus juice	1	-1	1
Water	1	-4	3
Pasta	1	-9	7
Energy / Grain Bar	0	8	-2
Coffee	0	2	7
Nuts	0	0	-5
Salad dressing	0	0	-5
Frozen fish	0	0	-3
Soup	0	-1	5
Bread	0	-2	3
Yogurt	0	-2	2
Canned or jarred fruit	-1	-1	-10
Flavored rice mix	-1	-2	-5
Salsa	-1	-3	-3
Citrus juice	-1	-4	-2
Tea	-2	7	-1
Margarine spread	-2	0	-6
Cold breakfast cereal	-2	-4	-1
Peanut butter	-3	1	0
Chocolate bar	-3	-5	-2
Frozen Meal	-4	-3	-5
Milk	-5	-3	-1
Pretzels	-5	-3	-6

Discussion

Over the past decade, there have been notable successes and failures in the market introduction of 'good for you' and functional foods. This pattern may continue as

consumers and producers move up the learning curve. We are in a transitional period where communication marketing may be critical for leveraging the potential of functional foods.

In this study, we tested mindset segmentation concerning 'good for you' foods at the level of product concepts. We found a greater range among older respondents showing that they differentiate among foods in terms of their likelihood to accept these food concepts. The smaller range among the younger respondents means that these respondents show less food-to-food variation, and are less likely to assign high interest to the concepts when products are positioned as 'good for you'.

We used the term '100% organic' to convey a concise message that responds to customer concern regarding food processing technology. This concern is related to the drive by manufacturers to give food a cachet beyond just energy and sensory satisfaction. The notion of 'organic' is tied in with the underlying notion that an organic food product that conveys more health benefits than comparable, non-organic foods. Surprisingly, our results showed that whereas among older adults the term '100% organic' increased acceptance of foods, it did not have the same affect among young adults. The effect of organic foods on acceptance and interest was much weaker among young adults than on older adults. Further, the term '100% organic' was found to improve acceptance at the concept level only for a few products, different ones for the two age groups.

Our results point to the need for companies to identify a well-articulated health claim regarding 'good for you' foods. Managers of private firms within the food supply chain must plan ahead. A crucial component of communications is how to provide knowledge to customers as well as how to stipulate what information to provide and how it will be received. Companies that market 'good for you' foods and, more recently, functional foods must position functional foods by relevant consumer segments and devise effective branding and communication strategies for each food.

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