Communications Benefits and Segmentation of Snack Foods: Case Study of Olives Using Conjoint Analyses

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Abstract

Research was conducted using conjoint measurement methodology to identify consumer reaction to various communication and product attributes of snack foods and to determine specific product attributes that lead consumers to crave these foods. 'Craving" is an illusionary term that would benefit from qualification. Olives, as a snack food, were analyzed in greater detail in order to quantify what consumers mean when using the term 'craving.' Thirty-six attributes were tested. Results from this analysis identified five highly-rated concepts with possible market application; three segments of consumers' perception that are labeled classic, elaborates, and imaginers; and that a self-described state of hunger, age, and gender can affects results.

Keywords: consumer motivation, product attributes, conjoint, snack foods, olives

1. Introduction

American consumers are spending increased amount of money on snack foods (US Market Trends and Forecasts). Especially important to understanding consumer attitudes toward snacks is the term "desire." The desire by consumers for a particular snack foods can be described as "craving" but the exact attributes of this term are illusive. A simple, universally accepted definition of craveability does not exist. According to Webster Dictionary, crave is defined as "to want greatly or to yearn for." Another definition is "a desire in hunger's absence for a specific food" (Marchetti). If a clear definition existed, snack food companies could enhance or reposition existing products and their communications, and could create new products to satisfy consumer needs. In addition to tradition snack foods, other foods elicit strong, often irrational, desires in consumers. These foods consisted of but are not limited to: chocolate, pizza, and

cinnamon rolls. It is not the objective of this study to determine if cravings are biological or psychological in origin.

A recurrent issue in both science and business for food products is that absence of a significant body of data about what features are important to consumers and what features are not. In some product categories (e.g., tomatoes) there is a great deal of information, but much of that information concerns the product features assessed on a physical, instrumental basis. There may be subjective data, but that data is not necessarily either in-depth or relevant to the communication of product features. Consequently, the foundation study presented here on olives represent an important source of information. Furthermore, the integrated nature of the Beckley & Moskowitz Foundation Study allows the researcher to compare results from one food to another. The comparison may be at the level of a measure (e.g., overall craving), or at the level of an organizing principle (e.g., concept response segments, and the division of consumers into the segments of "Elaborates", "Classics", and "Imaginers", respectively).

Information on one particular snack food, the olive, was extracted from the larger study for further analysis. Although olives are commonly used as an ingredient in food preparations, its historical usage and uniqueness connotes the potential for increased usage in the United States as a snack food.

Three objectives exist: 1.) To provide background information that may be used for comparison purposes with other snack food items; 2.) To determine what characteristics of snack foods are related to a craving: and 3.) To position olives vis-à-vis other snack foods. A deeper understanding or mapping of the consumer's mind regarding olives may provide much needed information for the food industry.

Information in this study is derived from a foundation study labeled "Crave-It™." (Beckley & Moskowitz, 2000).

2. Background

2.1 Snack Foods

An exact consumer definition of snack food is illusive and commonly allocated to salty foods eaten between regular meals. Synonymous with snack foods are savory snacks, potato chips, snack nuts, and popcorn (US Market Trends and Forecasts). Savory snacks consist of pretzels, tortilla chips, cheese curls/puffs, and meat snacks. Other foods eaten as snacks may be sweet and generally referred to as candies. Chocolate, alone or in combination with other ingredients, is one of the most popular sweet snacks.

Beckley & Moskowitz (2002) studied the expanded definition of snack foods of both salty and sweet foods to assess a number of components of a single food, as the consumer might see them. This study formed the basis of various comparisons and in-depth analysis of specific foods as well as serve as a benchmark. These components include product description, emotional benefits, origin, product use, etc. The Foundation Study comprises a set of 30 different, but linked studies, all having the same structure for the stimuli (conjoint measurement), and all having the same classification questionnaire. The underlying rationale for Foundation Studies was that the results for one food could be compared to the results for other foods. This enables the researcher and the marketer to understand the individual food in detail, and the food in relation to the performance of other foods.

2.2 Olives

Olives, biologically classified as a fruit, have been cultivated for over 5,000 years. Approximately 10 percent of olive production is for consumption with the remaining 90 percent converted into olive oil. Olives, depending on the processing method, are identified as black olives or green olives, also referred to as Spanish olives.

In the United States, olives are primarily sold in cans or jars in the condiment section of grocery stores. In ethnic neighborhoods and delis, olives are sold in bulk in either the black or green variety and prepared with various flavorings. Given the ethnic heritage, the growth of snacks in the United States, and the endless search for new food products, a rational for further exploration of attitudes towards olives as a snack food by the general consumer exists.

Olives can be used as is (straight from the can or jar) or as an ingredient in recipes. If used as is, olives may be eaten as a snack food and thus fall into the category of foods that are craved. This study uses conjoint analysis to focus on consumer attitudes towards olive consumption and frames the results in a detailed study (Beckley and Moskowitz, 2000) as the basis for further comparison.

3. Methodology

3.1 Conjoint Analysis

Conjoint analysis (Wittink & Cattin, 1989; Green & Srinivasan, 1991; Moskowitz, 1994; Moskowitz & Martin, 1993) was the basis of this study. The raw material for a conjoint measurement study comprises single, stand-alone elements. These elements or phrases are combined with other phrases to form a concept. The specific

stimuli comprised 36 elements and their rationale relevant for olives (Table 1). The consumer was shown a vignette or a description of an olive. The components of the description are systematically varied, and the consumer rates a number of these systematic variations on a scale (e.g., interest). Regression analysis shows how these different elements of the description or product concept 'drive' acceptance. The coefficients in the regression equation show the 'magnitude of the effect, with positive numbers driving acceptance and negative numbers driving rejection.

The elements were created by a team of research professionals with extensive knowledge in the areas of psychology, food product testing, concept development, and general consumer communications. A pilot study was developed to understand the appropriate structure of the phrase and the categories. With results from the pilot (and over 300 consumer responses), the Crave It! ™ categories were created. The general phrases developed in the pilot study were then customized for each specific category (Olives being one of the categories). The phrases were pulled from words used by manufacturers of the products, off of websites, and using terms that the general public associates with food.

3.2 Experimental design

The basic experimental design comprised 60 combinations, with 2-4 elements in each combination or vignette describing the olive. These combinations are arranged in specific design structure, so that the 36 elements are statistically independent of each other. The experimental design structure can be permuted in order to create 20 different variations. By permuting the design structure, but keeping the design structure itself

unchanged, one ensures that no single combination of concept elements could ever dramatically influence the results. Each respondent evaluated the 60 elements in the design in a unique randomized order, which further eliminated the possibility of order bias.

The respondent rated the concepts on a single attribute scale, anchored at both ends. The question read 'How intense is your craving for this olive; 1=not craveable at all … 9=Very intense'. The scale was present at the bottom of each concept. The respondent read the concept, and rated the concept by clicking on the appropriate button.

After completing the evaluation of the 60 systematically varied concepts, the respondent completed a classification question, dealing with geo-demographics, and attitudes towards olives. The classification questionnaire comprised 16 questions, and was materially the same across the 30 different foods, enabling a cross-food analysis. The questions included questions on:

1. geo-demographics (age, gender, income, market, time of day),
2. body state (self reported hunger level, oral health such as dentures),
3. craving (product features that make one crave the specific food, situation where the food is craved),
4. liking of the food (FACT Scale, Schutz, 1964)
5. where the item is purchased.

3.3 Respondents and invitations

The respondents were members of an opt-in e-mail service (Open Venue Ltd., Toronto), who agreed to participate in surveys. The respondents were sent an e-mail

invitation that directed them towards a 'wall' of studies. One of these was the olive study. A total of 44,000 invitations were sent out over a two-week period. From this number more than 4,500 respondents participated in the full set of studies. Altogether 168 respondents completed the olive study and comprise the database for this study.

3.4 Modeling responses at the individual respondent level

The study was set up so that a model could be created for each respondent. The ratings for each respondent were analyzed twice, after two separate data transformations. The first data transformation consisted simply of multiplying the rating (1-9) by 11 to generate an 11-99 point scale. The rationale was to make the coefficients easier to read. This is called the *persuasion scale*. It is the scale that will be used to determine whether or not the respondent validly rated the concepts, in terms of consistency of response.

The other scale comprises a simple binary transformation. If the rating for the concept was 1-6, then the rating was transformed to the value "0". In contrast, if the rating for the concept was 7-9, then the rating was transformed to the value "100". This transformation generated a binary response, called the 'top 3 interest' (or Top 3 for short). The Top 3 represents the type of data used by marketers, who are interested in the proportion of respondents interested in a concept. The marketer is not particularly interested in the intensity of the interest but is more focused on the number of interested individuals. This difference in the focus, a result of different intellectual heritages enjoyed by researchers in psychology versus sociology, generates differences in the way that data is analyzed.

After the data are transformed, the individual data were analyzed by dummy variable regression analysis, at the individual level. Each respondent generated a simple additive model of the form:

$$\text{Rating} = k_0 + k_1(\text{Element 1})\ldots k_{36}(\text{Element 36})$$

The additive constant, k_0, can be considered to be the conditional probability that an olive will be craved if there are no elements present in the concept. Clearly this additive constant represents only a theoretical value, because all concepts evaluated by respondents comprised at least two and at most four elements. The regression approach requires the use of the additive constant as a correction factor. The individual coefficients, k_1 to k_{36}, each show the conditional probability that the olive will be craved if the element is added to the concept.

From 1,500+ studies, where the concept elements were evaluated using experimental design, the following norms emerge. These norms are not precise numbers, but rather suggest ranges corresponding to different behaviors in the market.

a. Impact value < 0 Element detracts from acceptance, and should be avoided

b. Impact value 0-5 Element adds to acceptance, but only slightly

c. Impact value 6-10 Element adds to acceptance, should be in concept

d. Impact value 11-15 Element is important (often seen in segment results)

e. Impact value >16 Element is extremely important

For this paper, and for the Foundation Studies on foods in general, the operational definition of ‘intensity of craving’ is the sum of two parts – the additive constant, and the

average utility value for the first nine concept elements that deal with the features of the specific food.

A great deal of information can be gleaned from the classification questionnaire, which dealt with the geo-demographics of the respondent, as well as the attitudes and behaviors of the respondent towards olives in particular. The classification questionnaire is presented after the conjoint portion of the test and must be taken to complete the study. The classification questionnaire allows for more typical structured questions that are familiar to those who do consumer evaluations. The parallel structure of the classification questionnaire enables comparisons across foods.

3.5 Validity of individual data

The issue of validity of data cannot be addressed easily in consumer research because there are no external criteria by which to assess validity. Validity often then devolves down to the demonstration that the panelist was actually a validly recruited consumer. Fortunately for studies in which the stimulus is systematically varied, the researcher does have a way to establish validity. One can relate the ratings assigned by the panelist to the presence/absence of the concept elements. To the degree that the panelist is consistent in the ratings of the full concepts, one will obtain a high value for the R^2, which measures the goodness of fit of the model to the actual data. R^2 goes beyond reliability to validity, because the statistic measures how well the independent variables account for the variation in the data. The R^2 statistic is computed on the persuasion data, which was derived from a simple multiplication of the rating scale by the value 11. A simple multiplicative transformation does not affect the R^2 statistic.

Figure 1 shows the distribution of the R^2 statistic for the respondents in the olive study. As one might expect from these types of studies, there is a distribution of goodness of fit statistics, with many of them at the high end. A value of $R^2 > 0.66$ corresponds to a goodness of fit that would occur by chance only 5 times in a 100 trials for 36 predictor variables embedded in 60 cases or concepts. More than 75% of the individuals show this high R^2. The implication is that the quality of the data is fairly high at the individual respondent level.

4. Results

4.1 Positive and negative element rankings for snack foods.

A list of 20 foods eaten as snacks were rated for taste, appearance, aroma, and texture, and combinations of these attributes. The results are detailed in Table 2. For a food like potato chips, taste was the primary element considered of respondents. For ice cream, taste in combination with texture were the primary elements consideration. For a snack such as chicken, taste, aroma and appearance were all important. For appearance alone, only olives were highly rated.

4.2 Positive and negative element rankings for olives.

Table 3 shows the five most highly rated elements and the four most negative elements for olives as ranked by consumers. The most positive elements are: Meaty ripened olives ready to stick on your finger or pop on your mouth (9); Whole black olives without the pits (7); Extra large and nicely salted … with the stuffing you want … garlic, pimento, almonds, … whatever (7); Any size you want … small, medium, large, jumbo (7); and Green fleshy olives with that salty taste (7).

The most negative elements in descending order are: Small dark wrinkled olives marinated with hot pepper flakes (-19); Olive paste[1]* with lots of chopped olives (-15); With a chilled glass of water … or carbonated beverage (-6); and Cracked olives, a delicacy flavored with herbs, spices and a tasty marinade (-5).

Based on the rankings, one of the issues concerns the positive elements is what is the additive constant, and then what is the range of the elements, as well as what are the positive and negative elements. More deeply, is there a pattern that can be deduced from these data?

The additive constant is 36, which is similar to the additive constants for many other foods in this study. The 36 means that 36% of the respondents say that they crave the product (rating 7-9), when they evaluate a concept. Table 4 becomes more interesting when we look at the ratings of positive and negative elements. The first thing to notice is that the strongest performing element only scores a +9, that the statement: *Meaty ripened olives ready to stick on your finger or pop in your mouth*" will only attract 9% more respondents if that strongest performing element is inserted into the concept about olives. In contrast, the worst performing element, '*Small dark wrinkled olives marinated with hot pepper flakes'* will alienate 19% of the respondents. In the case of olives, being wrong is far worse than being right.

4.3 Segmentation

Concept-response segmentation has been developed for consumer-packaged goods and for services, respectively (Moskowitz, 1996). This notion is that there exists a

[1] Although olive paste may not rank high with consumers, many chefs use olive paste to enhance the flavor of their dishes.

limited set of segments or basic groups in the population, defined by their pattern of responses to concept elements. From an individual's pattern of responses one can put the individual into one of a limited set of groups, with the property that individuals in that groups resemble each other more than they resemble individuals in other groups. The allocation of individuals to a group is made strictly on the basis of the pattern of their responses to the concept elements. Subsequent allocations of individuals to these segments is often made on the basis of an assignment rule that has to relate segment membership to other, non-concept related variables, such as age, income, etc.

The algorithm is based upon a measure of distance or dissimilarity between pairs of respondents. This measure is empirically defined, and chosen by the researcher. The dissimilarity measure must be independent of the types of rating scales used by the respondents. For conjoint measurement, the researchers chose the variable [1-R], where R is defined as the Pearson correlation coefficient between the 36 element utilities of one respondent and the same 36 element utilities of another respondent. The Pearson R can vary from a high of +1 (meaning that the two respondents show identical patterns of utilities, different by an additive constant or a common multiplier), down through 0 (meaning no relation), to a low of –1 (meaning that the two respondents show opposite patterns). The corresponding dissimilarity variable, [1-R], thus ranges from a high of 2 corresponding to an inverse relation, down to a low of 0 corresponding to a perfect linear relation (Systat, 1997).

With this operational definition of the distance measure, respondents can then be clustered by k-means clustering in order to create a limited set of groups. Other studies (Beckley & Moskowitz) suggested approximately three basic segments as easy to create,

and easy to interpret. These groups are not, and need not, be of equal size. The segments are best named and assessed by inspection of the utility values. For the segments to be meaningful, the positive elements must logically be associated and thus present a coherent story.

The results show that three segments among olive respondents can de identified. Figure 2 shows the scattergram, and clearly reveals that there is no appreciable relation between the utility values obtained by any pair of the segments. That is, the segments appear to be quite independent of each other, rather different from the tendency toward linearity shown by the more conventional pairs of subgroups in Figures 3A-3C, respectively.

The three segments identified in Table 4 show rather different positive elements, and the utility values of the positive elements are very high. Segment #1, with 42 percent of respondents, likes only a simple message … 'whole black olives without the pits'. This appears to be the 'Classics" segment. What is important about the classic segment is its interest in the simple, traditional messages. These individuals do not like unusual, or novel flavored products or forms. Segment 2 may be the "Elaborates" segment. "Elaborates" wants lots of flavors, including stuff that was added to the product. "Elaborates:" also form a very large segment, comprising 42 percent of respondents. These individuals want added flavors and features of the olive. Segment 3 appears to be the "Imaginers". "Imaginers" are distinguished by their reactivity to elements other than product features. "Imaginers" like to dream about the product, and appear to be swayed by messages about venue and history as well as being swayed by product features. They constitute the smallest segment, 16 percent of respondents.

The three segments identified in this study are analogous with previously uncovered segments for other food categories (Beckley & Moskowitz).

The respondents in this study do not necessarily all think in the same way about what features of the olive make the olive craveable, and what do not. The conventional methods for dividing the respondents do not, however, ensure that the individuals in the different subgroups show different response patterns. Figures 3A-3C reveal the general similarity in response patterns to elements by individuals in different segments, whether these subgroups differ by age, gender, or even by self described level of hunger. Certainly there are differences at the micro level, but in many ways the different subgroups show correlated behaviors.

4.4 Impact of Hunger

The respondents profiled their own level of hunger on a four-point hunger scale (from no hunger to high hunger). Sixty percent of respondents rated themselves as having either no or low hunger; while the remaining 40 percent rated themselves as having medium or high hunger. These two groups (Low and High) are separately analyzed, with the results appearing in Table 5. The additive constant for olives is far higher for the higher hunger levels (constant = 45), as compared to the low hunger levels (constant = 29).

The array of elements that do well offers in each segment is quite diverse. For the low hunger group (rating of none or low hunger), only two elements do well. In contrast, for the higher hunger group (self-rating of medium or high hunger), far more elements do well. These elements comprise both statements of product features as well as emotional promises. These data suggest, therefore, that hunger has an impact on desire for olives.

This study also demonstrated that hunger can modify the response to messages. Although Figure 3C showed some correlations between low and high hunger for the utility of concept elements, hunger itself reveals three distinct sub traits worth investigating further.

1. Hunger increases the magnitude of the additive constant from 29 to 47. The conditional probability of a person saying that he or she craves an olive increases from 29% if the person is not hungry to 47% if the person is hungry. Clearly, the greater the perceived state of hunger, the greater the 'craving'
2. Hunger increases the number of concept elements that show a significant utility value (6 or higher). No or low hunger shows only two elements that achieve this significant utility value. Medium or high hunger shows 10 of the 36 elements reaching this significant utility value.
3. However, the utility values of the elements evaluated under hunger conditions are not higher than those evaluated under the non-hunger conditions. That is, when the respondent is not hungry the highest utility value is 10. When the respondent is hungry the highest utility value is 11. This means that hunger potentiates the general response and increases the number of significant elements, but does not magnitude the utility of the highest performing element.

The results from Tables 2 and 3 show that at a micro-level, looking at individual elements, there are clear differences between elements and between subgroups in terms of some of the elements. The differences appear in the positive versus negative elements. However, if one were to stand away from the data, and look at the correlations between

comparable subgroups on the full set of 36 elements, and then would the patterns reveal essentially linear relations, with some noise? Or, would the results suggest that elements one group liked could be either liked or disliked by a comparable subgroup? To the degree that the relation between pairs of subgroups is linear when the elements are plotted on a scattergram (Figure 2), one can say that in general concept elements that one group likes the other group likes also. To the degree that the relation is not linear, and perhaps not existent, we can say that elements liked by one group may or may not be liked by the other.

4.5 Gender

A clear example of the similarity of two subgroups appears in Figure 3A, comparing the 36 elements for males and females. A macro view of the results shows that elements scoring well among males also score well among females.

5. **Discussion**

The research results indicate that different attributes motivate the consumer of the various snack foods, that consumers' attitudes toward olives can be segmented by certain product attributes, and that self-perceived impact of hunger and gender affect attitudes. This information may be used for comparison purposes of other snack foods.

Segmentation constitutes a recurrent theme in the Foundation Study and in olives in particular. The existence of segments is well known in the marketing field, so that should cause no surprise. What is very interesting, however, is the emergence of three radically different mind-sets. Whether these segments, ("Classics", "Elaborates",

"Imaginers", respectively) represent basic groups or just emerge as convenient statistical artifacts needs to be further explored. In the case of foods as different as hamburger and cheesecake, this segmentation appears to work, and to drive different directions of product development.

Vis-à-vis other snack foods, olives appear to possess this type of segmentation as well. Segmentation procedures can always divide people into different groups, based upon one or another criterion. What is important is whether the segmentation makes sense, whether it is general, whether it leads to increased scientific understanding, and whether it leads to improved product development and marketing. The segmentation into the three groups appears to satisfy the four above-mentioned criteria. It is possible; therefore, that the intermediate or even low-level performance seen with olives for the total panel may result from the intermixing of respondents from the three segments. What one respondent finds acceptable in terms of the product statements or benefits another respondent from a different segment may find objectionable. This difference is clearly seen by looking at winning elements from one segment, to see how the other segments respond. Quite often respondents from one or even both of the other segments dislike that positive element.

If applying marketing communication messages to the three segments, "Classics" are not particularly responsive to product attributes except the promise of a good olive. "Elaborates" want a word picture of an exciting taste to eat. "Imaginers" focus on the experience of eating olives. With this in mind it should become easier to achieve a degree of market success because the marketer has already obtained, through research, some of the keys to the consumer mind (Hoban, 1998; Trout & Rivkin, 2000).

5.5 *Motivation or craving*

A clearer definition of craving has been advanced. The question of what do consumers feel drives their acceptance of olives and how does this feeling compare to what drives acceptance for the other 19 foods has been answered. One way to answer the question instructs the respondent to check off a variety of aspects that drives acceptance. Among these aspects are the sensory impacts of taste, appearance, aroma, and texture, but there are others, such as mood, situation, etc. This paper has only considered the sensory-based inputs.

It is the secondary attributes, appearance, aroma, and texture, which are important. The convention in this study is that an attribute is important for acceptance if 50% or more of the respondents rate it as key to driving craving. For olives, appearance, but not aroma or texture, is of secondary importance. Olives are the only food in the study for which taste and appearance are key, but aroma and texture are not.

Although the macro research objective was to learn about the map of the consumer's mind, in business, one of the key micro objectives is to discover what specifically to say in marketing communications in order to promote purchase of olives and snack foods. The lessons from the study are that the key messages promoting purchase are those that deal with the product features (Hollingsworth, 1996). Consumers need to hear primarily about the product itself, and not about other factors of a more image nature.

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Table 1
The 36 concept elements for olives

	Category	Rationale	Olives
E01	Primary	Basic physical attributes	Whole Black olives without the pits
E20	Primary	** (continuum: basic to complex/detailed physical attributes) in some cases … 'healthy'	Green fleshy olives with that salty taste
E03	Primary	** (continuum: basic to complex/detailed physical attributes)	Meaty ripened olives ready to stick on your finger or pop in your mouth
E04	Primary	** (continuum: basic to complex/detailed physical attributes) in some cases … 'real'	Medium size glistening olives with the briny taste of salt and garlic
E05	Primary	** (continuum: basic to complex/detailed physical attributes)	Fleshy, jumbo olives with the bitter, salty note
E06	Primary	** (continuum: basic to complex/detailed physical attributes)	Cracked olives, an Italian delicacy flavored with herbs, spices, and a tasty marinade
E07	Primary	** (continuum: basic to complex/detailed physical	Small dark wrinkled olives marinated with hot pepper flakes

		attributes)	
E08	Primary	** (continuum: basic to complex/detailed physical attributes)	Olive paste with lots of chopped olives
E09	Primary	Complex physical attributes; details	All sizes of green and black olives in olive oil with lots of herbs and spices
E10	Mood Secondary	Party pleaser/inviting	Olives are a party pleaser
E11	Mood Secondary	Beverages	With a chilled glass of water … or carbonated beverage
E12	Mood Secondary	with…???	Any size you want… small, medium, large, jumbo…you name it!
E13	Mood Secondary	Premium quality/ classic taste	Premium quality … that great classic taste, like it used to be
E14	Mood Secondary	Savor it…	You can just savor it when you think about it during work and school
E15	Mood Secondary	All natural/ changing flavors	100% natural … and new choices every month to keep you tantalized
E16	Mood Secondary	With all the extras you want…	Extra large and nicely salted … with the stuffing you want. Garlic, pimentos, almonds.... whatever
E17	Mood Secondary	Imagine the taste…	You can imagine the taste as you walk in the door
E18	Mood	Lick your lips twice…	So good …you practically have to lick your

	Secondary		fingers & lips twice after each bite
E19	Emotional	Quick/ fun/ alone	Quick and fun … eating alone doesn't have to be ordinary
E20	Emotional	Have to have it… can't stop	When you think about it, you have to have it … and after you have it, you can't stop eating it
E21	Emotional	Fills that empty spot…	Fills that empty spot in you...just when you want it
E22	Emotional	Cheers you up…	When you're sad, it makes you glad
E23	Emotional	Escape routine/ celebrations	Now you can escape the routine … a way to celebrate special occasions
E24	Emotional	Multi-dimensional sensory experience	A joy for your senses: seeing, smelling, tasting
E25	Emotional	with family & friends	An outrageous experience … shared with family and friends
E26	Emotional	Ecstasy…	Pure ecstasy
E27	Emotional	Satisfies hunger…	It feeds THE HUNGER
E28	Brand or Benefit	Basic brands/ experiences	From your favorite grocery store
E29	Brand or Benefit	Basic to premium brands	From California
E30	Brand or Benefit	Basic to premium brands	From Italy
E31	Brand or	Basic to premium brands	From Greece

	Benefit		
E32	Brand or Benefit	Basic to premium brands	Select from the Deli
E33	Brand or Benefit	Premium brands/ experiences	From Dean & Deluca
E34	Brand or Benefit	Fresh… for you … by you	Freshly prepared … especially for you
E35	Brand or Benefit	Best in world…	Simply the best olives in the whole wide world
E36	Brand or Benefit	Safety…	With the safety, care and cleanliness that makes you trust it & love it all the more

Table 2: Percent of respondents identifying sensory inputs as being key to craving the food.

Food	Taste	Appearance	Aroma	Texture
Average	90%	43%	45%	33%
Taste Primarily				
Potato Chips	93%	24%	24%	40%
Cheese	93%	43%	41%	40%
Cola	92%	10%	19%	7%
Nuts	90%	39%	47%	19%
Chocolate Candy	89%	29%	23%	35%
Pretzels	86%	46%	30%	42%
Tort Chip	83%	41%	25%	39%
Taste > Appearance				
Olives	89%	52%	29%	35%
Taste > Aroma				
Coffee	91%	15%	92%	11%
Taco	91%	46%	54%	17%
French Fries	95%	46%	50%	39%
Taste > Texture				
Peanut Butter	91%	21%	49%	61%
Ice Cream	95%	46%	7%	50%
Taste > Appearance > Aroma				
Pizza	91%	61%	53%	21%
Steak	83%	59%	52%	38%
Taste > Aroma > Appearance				
Chicken	89%	54%	72%	26%
BBQ Ribs	89%	54%	72%	26%
Cinnamon Rolls	84%	62%	69%	17%
Hamburger	93%	50%	57%	18%
Taste > Appearance > Texture				
Cheesecake	87%	61%	17%	58%

Table 3

Positive and Negative Elements– Total Panel

		Total
	Base Size	147
	Additive	36
	Positive Elements	
E03	Meaty ripened olives ready to stick on your finger or pop in your mouth	9
E01	Whole black olives without the pits	7
E16	Extra large and nicely salted ... with the stuffing you want ... garlic, pimentos, almonds ... whatever	7
E12	Any size you want ... small, medium, large, jumbo ... you name it!	7
E02	Green fleshy olives with that salty taste	7
	Negative Elements	
E06	Cracked olives, a delicacy flavored with herbs, spices, and a tasty marinade	-5
E11	With a chilled glass of water ... or carbonated beverage	-6
E08	Olive paste with lots of chopped olives	-15
E07	Small dark wrinkled olives marinated with hot pepper flakes	-19

Table 4

Positive elements for three olive segments, segmented by the pattern of their utility values.

		Tot	**S1**	**S2**	**S3**
	Base Size	168	70	71	27
	Constant	36	**44**	22	50
	Segment #1 ("Classics")				
E01	Whole black olives without the pits	7	**18**	15	-42
E03	Meaty ripened olives ready to stick on your finger or pop in your mouth	9	**8**	18	-12
	Segment #2 ("Elaborates")				
E09	All sizes of green and black olives in olive oil with lots of herbs and spices	2	-12	**23**	-20
E02	Green fleshy olives with that salty taste	6	-13	**22**	15
E04	Medium size glistening olives with the briny taste of salt and garlic	-1	-17	**18**	-9
E03	Meaty ripened olives ready to stick on your finger or pop in your mouth	9	8	**18**	-12
E05	Fleshy, jumbo olives with the bitter, salty note	4	-11	**18**	5
E16	Extra large and nicely salted ... with the stuffing you want ... garlic, pimentos, almonds ... whatever	7	-5	**17**	11
E06	Cracked olives, a delicacy flavored with herbs, spices, and a tasty marinade	-5	-24	**17**	-13
E01	Whole black olives without the pits	7	18	**15**	-42

E13	Premium quality ... that great classic taste ... like it used to be	4	-2	**10**	6
E12	Any size you want ... small, medium, large, jumbo ... you name it!	7	5	**9**	4
E18	So good ... you practically have to lick your fingers & lips twice after each bite	4	-1	**7**	6
E25	An outrageous experience ... shared with family and friends	3	3	**6**	-5
	Segment #3 ("Imaginers")				
E02	Green fleshy olives with that salty taste	6	-13	22	**15**
E28	From your favorite grocery store	3	0	3	**12**
E16	Extra large and nicely salted ... with the stuffing you want ... garlic, pimentos, almonds ... whatever	7	-5	17	**11**
E18	So good ... you practically have to lick your fingers & lips twice after each bite	4	-1	7	**6**
E13	Premium quality ... that great classic taste ... like it used to be	4	-2	10	**6**

* Beckley & Moskowitz, 2000.

Table 5

Effect of hunger on utility of concept elements for olives

	Self reported hunger level	Tot	Low	High
	Base Size	168	101	67
	Constant	36	29	45
	Low Hunger (Hunger rating 0,1)			
E03	Meaty ripened olives ready to stick on your finger or pop in your mouth	9	10	7
E01	Whole black olives without the pits	7	7	7
	High Hunger (Hunger rating 2,3)			
E12	Any size you want ... small, medium, large, jumbo ... you name it!	7	4	11
E16	Extra large and nicely salted ... with the stuffing you want ... garlic, pimentos, almonds ... whatever	7	5	10
E02	Green fleshy olives with that salty taste	6	4	9
E30	From Italy	3	-1	9
E18	So good ... you practically have to lick your fingers & lips twice after each bite	4	1	8
E03	Meaty ripened olives ready to stick on your finger or pop in your mouth	9	10	7
E17	You can imagine the taste as you walk in the door	2	-2	7
E01	Whole black olives without the pits	7	7	7
E10	Olives are a party pleaser	3	0	7

E13	Premium quality ... that great classic taste ... like it used to be	4	3	6

Figure 1

Distribution of the R^2 statistic for olives

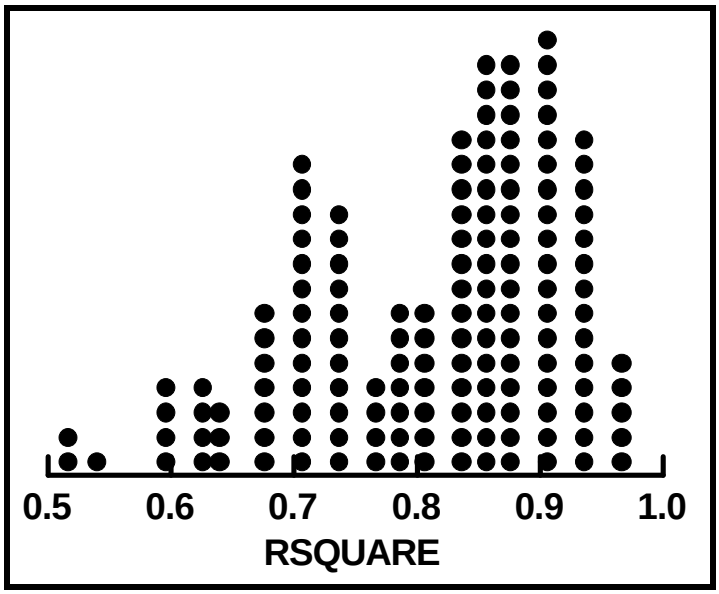

Figure 2

Scattergram for utility values of three olive segments obtained by clustering 168 respondents.

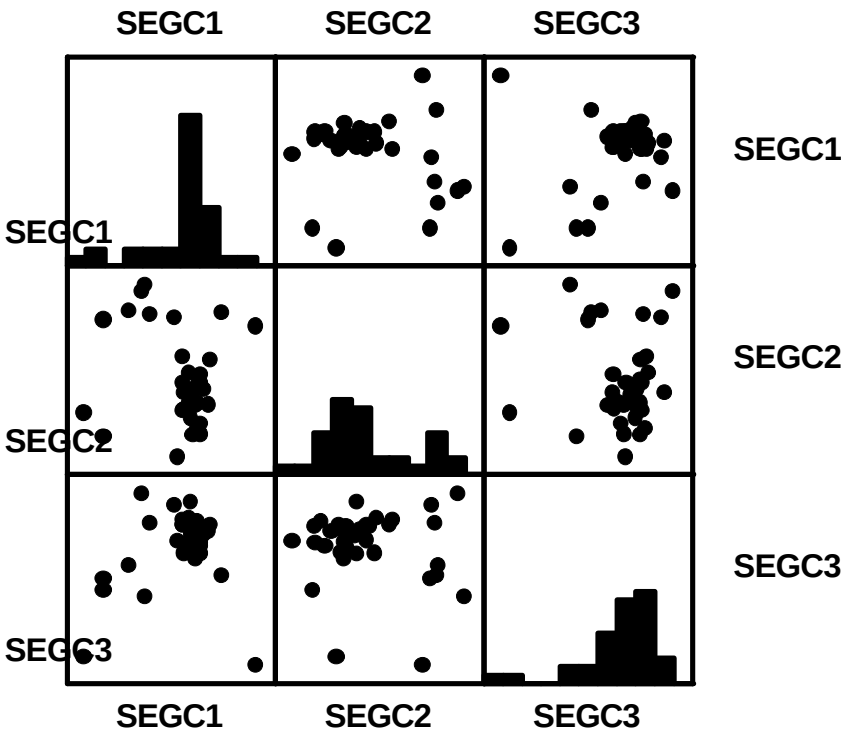

Figure 3A

Scatterplot by gender and distribution of individual utility values.

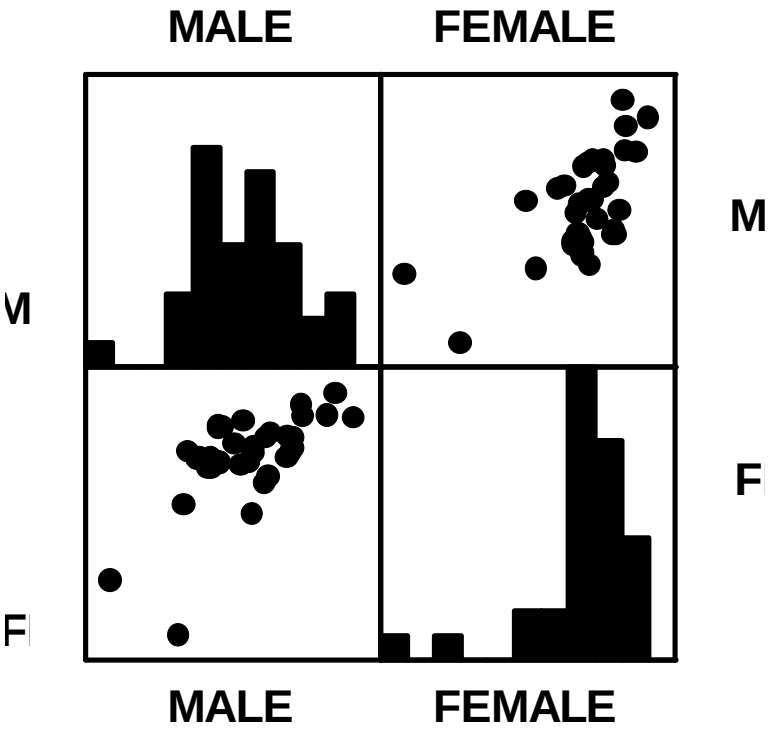

Figure 3B

Scatterplot by age and distribution of individual utility values.

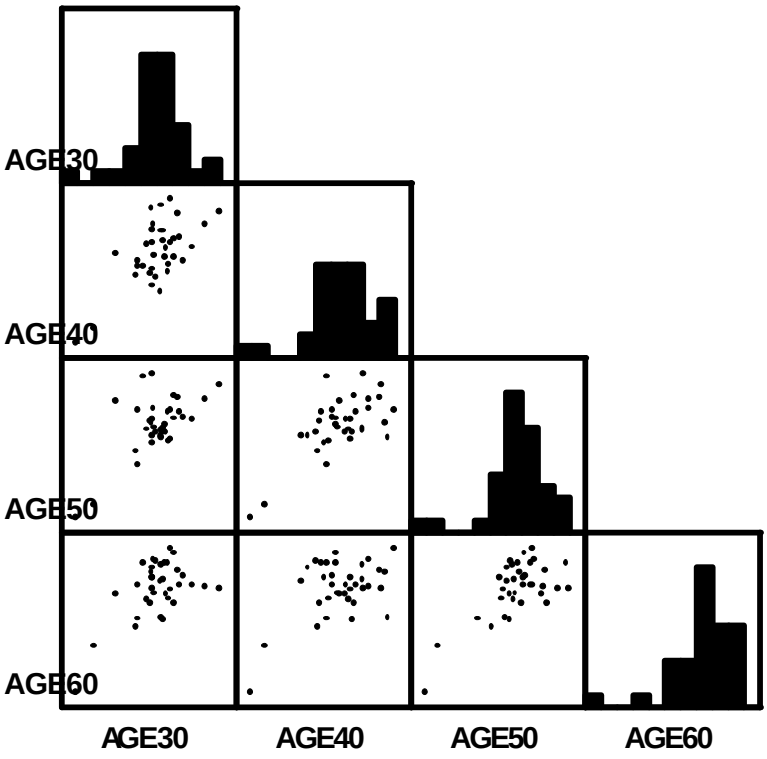

Figure 3C

Scatterplot by self-described hunger state and the distribution of the individual utility values.