

THE MARKETING CONCEPT APPLIED TO "SELLING" GOOD NUTRITION:

Food Habit Improvement in Four Ethnic Groups
of ENEP Homemakers^{1,2}

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The application of the marketing concept to non-business situations is currently an important issue in marketing circles. Many leading marketing specialists (14,27,29,30) now agree that if the discipline is to remain relevant, it must respond to the challenges of pressing social problems and make a significant contribution to their solution. Marketing concepts and techniques are relevant because marketing describes a basic dimension of the activities of social organizations. All institutions have "customers" and "products" and engage in the task of managing exchange processes (28). The marketing functions include the identification of markets and the planning, implementation and control of programs that deliver "products" which meet the needs of these markets. Institutions which provide social and cultural services can utilize these techniques to improve the design, distribution, and promotion of their services (14,29,30).

Businesses with heterogeneous markets have found it profitable to identify the characteristics of homogeneous subsets of customers existing within their total market (24). These subsets can be defined in terms of demographic variables (age, sex, family size, income, occupation, education, etc.), psychographic characteristics such as life style or personality, and so forth. Once subsets of customers have been identified, the business can design products, advertising and promotion programs compatible with the characteristics of the various customer types. For example, one study found three basic types of customers which could be labeled "swingers," "status seekers," and "plain Joes" (28). The application of this knowledge to the design and promotion of such products as automobiles can be readily seen.

One technique of market segmentation which has proven helpful in the business experience is known as product-space segmentation (28). It has been found that subjective perceptions of a product are often more important in determining acceptance than are the product's objective characteristics (49). In order to identify the nature of these perceptions, consumers are asked to compare existing products according to their perceived similarity and in relation to their ideal products. Through factor analysis (46,47), the respondents are classified into groups which are internally homogeneous but quite different from each other. Each group of respondents perceives the product in a distinct way. The analyst then infers the latent attributes which consumers are using to perceive the product class. Once market segments are so identified, it is possible to predict preferences of groups of consumers and determine the greatest opportunity for new products as well as how an existing product or its image should be modified in order to increase its acceptance.

It was the purpose of this study to utilize product-space segmentation techniques to characterize the "market" of homemakers participating in the Sacramento, California, Expanded Nutrition Education Program in order to aid in the design of "marketing programs" (educational approaches) tailored to individual needs. Marketing techniques were used to: (1) derive the cognitive structure and value dimensions behind the choice of foods in the four ethnic groups (Black, Anglo, Chinese, and Mexican) represented in the ENEP program; (2) characterize individual homemakers belonging to these ethnic groups on the basis of their food attitudes; and (3) relate these attitude patterns to homemakers' level of dietary adequacy, time spent in the program and rate of improvement.

PROCEDURE

A specialized questionnaire was constructed for each of the four ethnic groups represented in the Sacramento ENEP program. The questionnaire was arranged in a grid with 20 foods listed across the top and 25 uses and characteristics of food down the side of the grid. This type of questionnaire allows subjects to generate the dimensions of foods and uses under study based on the perceived appropriateness of the foods in the given situations. Questionnaire entries are given in Table I. The foods included were chosen in order to obtain information regarding respondents' attitudes towards: (1) foods they frequently consume (based on analysis of 24-hour recalls provided by the ENEP office and (2) readily available, relatively inexpensive, nutritious foods which could be substituted for less nutritious items currently being consumed. Foods in this latter category were the same for all ethnic groups. The uses were chosen to represent factors influencing food habits and included cognitive and value dimensions. Suitable numbers of questionnaires were translated into Spanish and Chinese for non-English speaking homemakers.

TABLE I

USES & ATTRIBUTES ON QUESTIONNAIRES

if I want to lose weight	for children
for dinner	as a snack
a food my mother	should be eaten every day
easy to digest	can be fixed many different ways
a popular food now	a food to eat when I'm alone
a substitute for meat	for women
easy to make	for lunch
for breakfast	when I want to stretch my budget
for men	a healthful food
a filling food	something to eat when I'm unhappy
a family favorite	a food to eliminate when prices rise
a food I reward myself with	for special occasions
to eat when away from home	

FOODS ON QUESTIONNAIRES FOR ALL GROUPS

eggs
liver
dry beans
peanut butter
milk
cheese
rice
whole wheat bread

TABLE I (cont'd)

<u>BLACK FOODS</u>	<u>ANGLO FOODS</u>	<u>MEXICAN FOODS</u>	<u>CHINESE FOODS</u>
orange juice	orange juice	oranges	mandarin oranges
grapefruit juice	tomato juice	tomatoes	broccoli
peas	peas	leafy greens	bok toy
greens	spinach	sweet potatoes	melon soup
corn	sweet potatoes	green beans	vegetable soup
string beans	green salad	chili	pork
pork	pork	chicken	fish
chicken	fish	hamburger	soybean cake
ground beef	hamburger	round steak	noodles
corn bread	steak	tortillas	brown rice
grits	soda	soda	ice cream
soda	cookies	cake	cookies

Respondents were asked to complete the questionnaire using a "✓" to signify appropriate and a "0" for inappropriate. ENEP aides administered the questionnaire to 38 Mexicans, 28 Blacks, 46 Anglos, and 23 Chinese.

In addition, the aides were asked to note on the questionnaire the length of time each respondent had participated in the program and use a 7-point scale to evaluate the dietary adequacy of the respondent, both at the time she completed a questionnaire and at the time she joined ENEP. The evaluation was based on discussions of dietary intake between program aide and homemaker. Ratings from one to seven were assigned to percentage of Basic Four minimum recommendations consumed daily by the homemaker. A rating of one indicated that the homemaker was not meeting the daily minimum recommendations for any of the four food groups, while a seven indicated that she was daily consuming at least the minimum recommendations for all four groups. Ratings 2 through 6 represented gradations between these two extremes.

For purposes of computation, appropriate was coded 2 and inappropriate 1. Mean ratings were calculated for each ethnic group and these served as the basis for computing a measure of scaled distance between pairs of foods and uses (44). The measures thus derived were entered as correlation coefficients in the BMD principal component factor analysis program using Varimax rotation (13). An r and q analysis was run for each ethnic group with foods and uses alternating as cases and variables. In each instance an eigen value of .99999 was used as the limiting value for the number of factors to be extracted and rotated. Mean ratings were used in defining these factors.

The matrix was then rearranged so that respondents served as variables and their ratings as cases. The ratings were entered as raw data in the BMD factor analysis program described above. Row and column means for the three individuals loading highest on each factor were compared with the row and column means for the ethnic group concerned. The nature of the differences observed was used in naming the people factors.

In addition, three measures of deviancy (positive, negative, and absolute) were calculated. Deviancy was defined as the difference between an individual's cell ratings and the mean ratings for that cell across the entire sample.

A stepwise linear multiple regression analysis (13) was then performed with: (1) people factor loadings, (2) positive, negative, and absolute deviancy scores, and (3) individual means over all food-use combinations serving as independent variables to predict the dependent variables of dietary adequacy, time in program and rate of improvement. Rate of improvement was defined as the difference between an individual's initial and current ratings of dietary adequacy divided by the maximum number of points which the individual could progress (six), divided by the number of months in the program.

RESULTS

Food and Use Factors. In every analysis, the proportion of variance accounted for by the food and use factors produced exceeded .75. Analysis of the factors indicates that the perceived pattern of relationships among foods and food uses varies with ethnicity. However, similarities are also apparent and some differences are of emphasis rather than basic character. These similarities are evident among Blacks, Mexicans, and Anglos and particularly between Blacks and Mexicans. The Chinese present a more unique perceptual constellation. Among Blacks, Anglos, and Mexicans, the common underlying dimensions relating to food include meal items vs. snacks and high calorie or filling vs. light.

Based on an analysis of the use factors, it could be concluded that one reason Anglos eat is to satisfy hunger and maintain health in a socially normative and economically practical manner. Other reasons are primarily organized around a dichotomy of self-indulgence and self-denial. A member of this ethnic group is likely to turn to food, on one hand, as a self-administered reward or as a comfort when unhappy. On the other hand, he is likely to deny food to himself for reasons of overweight or digestion difficulties. A positive value is placed on the practice of self-denial; this is what "should be [done] every day." The concept of food as a means of social contact exists among Anglos, but it is submerged in the factor of self-indulgence.

The virtue of self-denial is not manifest among Blacks and Mexicans. These two groups are nearly uniform in their perceptual classifications of food uses. They evidence an openness and enthusiasm for eating and for food as a focus for social interaction. They rated more foods as appropriate in more situations than did the Anglos and Chinese and they possess a distinct social factor of food use. Among these groups, self-denial is not perceived as a singular ideal but rather operates in a trade-off with self-indulgence to help maintain emotional and bodily equilibrium. In addition, Blacks and Mexicans eat to satisfy hunger and maintain health in a socially normative and economically practical manner.

In contrast to the open enthusiasm for eating expressed by Blacks and Mexicans, the Chinese attitudes are characterized by conservatism and restraint. Of all groups, the Chinese found the fewest number of foods appropriate in the fewest situations. They perceive foods in two categories: "Foods for Us," such as bok toy, vegetable soup and melon soup and "Foods for Them, but Not Us," such as cheese, whole wheat bread and brown rice. Restraint and conservatism in both the quantity and quality of food are expressed in their use factors. The factor accounting for the greatest proportion of total variance is to partake of a small quantity of food or a light meal. The factor most similar to other groups' "Satisfy hunger and maintain health. . ." is centered around restriction of calories and of items regarded as difficult to digest. The maintenance of health also appears as a distinct factor.

In summary, the essential nature of Chinese food attitudes could be encapsulated in the word "conservatism," Black and Mexican attitudes in "enjoyment," and Anglo in the "pleasure-pain principle."

Nutrition educators could utilize this data in the development of educational approaches which communicate relevance to the ethnic groups with whom they work. Individuals are more likely to adopt a new food practice when that practice is seen in a logical and significant relationship to their already existing perceptual frameworks.

People Factors. The fact that important psychological differences exist among individuals of a subculture is demonstrated by the variety of people types which were produced. Even more than knowledge of group attitudes, awareness of individual uniqueness can be helpful in designing relevant educational approaches. A questionnaire such as the one used in this study could be utilized by ENEP to diagnose the nature of individual homemakers' difficulties and to prescribe appropriate remedies. Analysis of a homemaker's response can hint at problems underlying her food behavior so that the cause, as well as the effect, can be treated.

The number and type of people factors produced varied with ethnic group, although several types were found in two or more groups. These factors accounted for 53 to 57% of the total variance. Approximately two-thirds of the homemakers fell into categories which indicated problems with food. These problems were generally of four types: (1) difficulty with cooking, (2) monotonous preparation styles, (3) indigestion problems, and (4) lack of nutritional awareness. The greatest number of these problem-type homemakers could be labeled Hostile, Social Isolate, or Unhappy Eater.

Food presents enormous problems to the Hostiles, a type found among Anglos, Blacks, and Mexicans. Although they feel a wide variety of foods should be eaten every day, they find food expensive and difficult to prepare and digest. They, as well as their mothers, are unimaginative cooks. Food does not serve as a means of contact with either family or friends. Separate foods are seen as appropriate for men and women and for adults and children. Homemakers of this type derive little personal satisfaction from eating. Food is not perceived as filling, as a reward, or as comfort when they are alone or unhappy.

For the Social Isolates, who were found in all ethnic groups, food does not provide a common ground for interaction with friends. They find few uses for the foods most popular among their respective ethnic groups, and believe that few foods are nutritious. Like the Hostiles, they have trouble with cooking and digestion, and regard themselves and their mothers as unimaginative cooks.

Isolation was expressed in the food attitudes of two other types: the Unhappy Eaters, found among Anglos and Mexicans, and the Home Centered, found among Anglos, Blacks, and Chinese. The former type perceives food primarily as an emotional comfort when they are unhappy, while the latter feels that eating is best done at home. Home Centereds also indicate

trouble with cooking, derive little personal pleasure and satisfaction from eating and find fewer than average foods appropriate for women.

The Totally Negative Anglos, Mexicans, and Chinese had extremely low means over all foods and uses. Only the most commonly accepted uses and characteristics of food were found appropriate, e.g., eggs for breakfast and rice is filling.

A category of Escapists was found among the Anglos. These homemakers have difficulty with cooking, cannot seem to please their families and would rather just leave it all behind and eat away from home.

Mexican homemakers produced three unique types: Conservatives, Pragmatists, and the Indigestion Group. Conservatives are very cautious with spending money for food, especially as prices rise, and find a limited number of foods appropriate for meals and special occasions. These homemakers also have problems with preparation and digestion. Pragmatists concentrate on foods that are both economical and filling. However, they have trouble with cooking and believe few foods are nutritious. The Indigestion Group is characterized by digestion problems and unimaginative cooking.

A group which could be described as Stuck in a Rut was found among the Blacks. Although these homemakers feel that cooking is easy, their repertoire is limited. They are most comfortable eating at home, rather than with friends. Few foods are seen as filling or economical. However, they do believe many foods are nutritious and should be eaten every day.

The remaining one-third of the homemakers fell into categories with positive attitudes towards food and cooking. The Anglo, Mexican, and Chinese Sociables had the highest means over all foods and uses. For them, food is primarily a focus for social interaction and they derive much personal pleasure from eating. These homemakers indicated that they and their mothers prepare a wide variety of foods. All Chinese homemakers who answered the questionnaire in English belong to this type.

Cooking comes easy for Anglo, Black, and Chinese Confident Independents and they report little difficulty with digestion. They believe a wide assortment of foods should be eaten every day and they rated themselves and their mothers as imaginative cooks.

Anglos of this type express independence of a rugged individualist nature. They have a rather Spartan, utilitarian orientation towards eating and might be called the dry beans and spinach type. On the other hand, Blacks and Chinese are independent in the sense of woman's liberation. They are comfortable about eating alone and away from home, yet food is also perceived as a means of social contact. Chinese Independents find more foods appropriate for women than do other Chinese types.

Black Good Cooks and Enthusiastic Eaters enjoy both cooking and eating, particularly on special occasions.

What stands out in this analysis is the predominance of types which indicate problems with food. This is not really surprising since the sample was drawn from women participating in a nutrition education program. Therefore, results are not meant to generalize to all people or to all members of specific ethnic groups.

However, the presence of food attitudes which express hostility, negativism, lack of confidence, depression, limited horizons, and desire for escape may be an indication of problems that go beyond food alone. Psychologists have stated that eating behavior can be understood only in relation to an individual's entire pattern of adjustment (4). Better food habits are related to good family relationships, adjustment to reality, willingness to accept guidance, flexibility, and emotional stability while poor food habits are related to poor psychological adjustment (4, 18). Perhaps the presence of these eating problems among a sample of low-income people is a reflection of poverty itself. If the low-income life style is characterized by feelings of powerlessness, meaninglessness, anomie and isolation (20), it could be expected that these qualities would be reflected in low-income food attitudes.

Research has shown that eating habits of the family (17) and especially the mother (8,34,35,38) strongly affect the developing attitudes of the young child. Families with poor food practices transmit them to their children and a perpetuation of poor food practices occurs. This was supported in the study by the fact that problem types indicated that their mothers prepared a limited variety of foods while the opposite was true of the positive types.

All of this emphasizes the need for nutrition education and underscores the necessity for an educational approach which considers the entire individual in her cultural, psychological, and socio-economic context.

Prediction of Performance in Program. A mixed pattern of results emerged from the regression analysis predictions of dietary adequacy, time spent in the program, and rate of improvement. An average of 51% of the total variance was explained. In many instances, the results are difficult to interpret. Tables II, III, and IV present a summary of the analyses. Underlined listings indicate that the one independent variable alone predicted the dependent variable at least at the .05 level of significance.

In light of the foregoing discussion, it is not surprising that some of the problem type attitude constructs are associated with low ratings of dietary adequacy, and some of the positive constructs are correlated with higher ratings. However, the reverse was just as often the case. It appears that, among this sample, some relationship exists between food attitude patterns which indicate isolation or deviance from group attitudes and better than average dietary intake. One possible conclusion is that intake patterns typical for the group may be inadequate. The outstanding exception is the Chinese, among whom deviance in any direction is related to low ratings of dietary adequacy.

TABLE II
 VARIABLES CONTRIBUTING SIGNIFICANTLY TO REGRESSION EQUATION
 PREDICTION OF DIETARY ADEQUACY

MEXICANS (R²=.947)

<u>HIGHEST STATUS</u>	<u>% Contribution to Regression Equation</u>	<u>LOWEST STATUS</u>	<u>% Contribution to Regression Equation</u>
negative deviancy	28.0	positive deviancy	26.6
total deviancy	16.2	high means	8.2
Isolates	5.7	Totally Negative	5.9
Indigestion Group	3.8	Conservatives	2.4
Hostiles	1.4	<u>Pragmatists</u>	1.5
Sociables	.3		

ANGLOS (R²=.228)

<u>HIGHEST STATUS</u>	<u>% Contribution to Regression Equation</u>	<u>LOWEST STATUS</u>	<u>% Contribution to Regression Equation</u>
Isolates	20.3	<u>total deviancy</u>	50.8
		Totally Negative	17.0
		Sociables	11.9

BLACKS (R²=.486)

<u>HIGHEST STATUS</u>	<u>% Contribution to Regression Equation</u>	<u>LOWEST STATUS</u>	<u>% Contribution to Regression Equation</u>
positive deviancy	27.2	negative deviancy	37.9
Hostiles	6.3	<u>total deviancy</u>	21.8
Home Centered	1.9	Isolates	4.9

TABLE II (Cont'd.)

CHINESE (R²=.710)

<u>HIGHEST STATUS</u>	<u>% Contribution to Regression Equation</u>	<u>LOWEST STATUS</u>	<u>% Contribution to Regression Equation</u>
Isolates	5.4	negative deviancy	30.9
<u>Confident Independents</u>	3.1	positive deviancy	30.5
Home Centered	.5	<u>total deviancy</u>	19.7
		Totally Negative	6.3
		Sociables	3.6

All R's \leq .05 level of significance.

TABLE III

VARIABLES CONTRIBUTING SIGNIFICANTLY TO REGRESSION
PREDICTION OF TIME IN PROGRAM

<u>ANGLO (R²=.376)</u>			
<u>LONGEST</u>	<u>% Contribution to Regression Equation</u>		
high means	27.4		
Sociables	18.7		
Escapists	16.4		
<u>Isolates</u>	20.2		
positive deviancy	17.2		
<u>BLACK (R²=.398)</u>			
<u>LONGEST</u>	<u>% Contribution to Regression Equation</u>	<u>SHORTEST</u>	<u>% Contribution to Regression Equation</u>
<u>Good Cooks & Enthusiastic Eaters</u>	36.4	positive deviancy	27.5
Confident Independents	16.9		
Stuck in a Rut	10.1		
Home Centered	9.1		
<u>MEXICAN (R²=.848)</u>			
<u>LONGEST</u>	<u>% Contribution to Regression Equation</u>	<u>SHORTEST</u>	<u>% Contribution to Regression Equation</u>
<u>Hostiles</u>	34.2	Unhappy Eaters	27.1
		Sociables	17.5
		high means	14.2
		Totally Negative	6.9

Results for Chinese did not meet tests for .05 level of significance

All R²'s \leq .05 level of significance

TABLE IV

VARIABLES CONTRIBUTING SIGNIFICANTLY TO REGRESSION EQUATION
 PREDICTION OF RATE OF CHANGE
 organized by direction of rate

MEXICANS (R²=.800)

<u>MOST RAPID</u>	<u>% Contribution to Regression Equation</u>	<u>SLOWEST</u>	<u>% Contribution to Regression Equation</u>
Isolates	8.6	Hostiles	36.2
<u>Pragmatists</u>	3.9	high means	29.2
		Sociables	9.1
		Unhappy Eaters	4.1

ANGLOS (R²=.177)

<u>MOST RAPID</u>	<u>% Contribution to Regression Equation</u>	<u>SLOWEST</u>	<u>% Contribution to Regression Equation</u>
<u>Confident Independents</u>	48.7	Escapists	29.9
total deviancy	21.4		

BLACKS (R²=.361)

<u>MOST RAPID</u>	<u>% Contribution to Regression Equation</u>	<u>SLOWEST</u>	<u>% Contribution to Regression Equation</u>
Hostiles	24.0	<u>Good Cooks and Enthusiastic Eaters</u>	33.4
		positive deviancy	24.1
		Confident Independents	18.6

CHINESE (R²=.287)

<u>MOST RAPID</u>	<u>% Contribution to Regression Equation</u>	<u>SLOWEST</u>	<u>% Contribution to Regression Equation</u>
Isolates	32.2	<u>negative deviancy</u>	67.8

All R's \leq .05 level of significance.

Two categories of people types were found to remain in the program longer than average: (1) Blacks, Anglos, and Mexicans who indicated hostility, lack of confidence and isolation in their food attitudes and (2) socially minded Anglos and Blacks with positive attitudes who are, by inference, agreeable and pleasant to work with. Mexican Sociables, however, spend less than average time in the program, as do Mexican Unhappy Eaters, those with extremely negative attitudes, and Blacks with high scores of positive deviance. Results for the Chinese did not meet tests for the .05 level of significance.

Both problem and positive types demonstrated rapid and slow improvement, and patterns are not consistent between ethnic groups. However, results support several theories regarding food habit change.

Types with positive attitudes towards food may resist change because they simply like the foods they are eating. It has been found that there is resistance to change among individuals who were fed lovingly as children and who find food a great source of pleasure and delight. In addition, positive types may hesitate to change because their food habits are a form of self-expression (36).

People who are reasonably secure and constructive in their outlook on life will be able to accept a wide range of changes in their eating habits (9). This may be why some problem types made slow progress. Here again, change may be related to early experiences with food in the family. It has been found that uncooperative response to food habit change is related to an unresolved dependent relationship to the mother in which the offering and receiving of food plays a paramount role (9). In addition, slow progress by these problem types may arise from a lack of interest or understanding on their part of what is needed and why, rebellion against authority or an educational approach which treats the effect of a food habit instead of recognizing, understanding, and effectively treating underlying psychological factors (36).

Mexican and Chinese Isolates made rapid progress but they were already eating comparatively well. It may be that with this good head start all they need is a demonstration of interest and encouragement in order to improve. Perhaps these isolated types strive to please the program aide in order to establish and maintain communication with someone.

Research has found that improved food practices are brought about when individuals discover what changes are necessary to make and are strongly motivated to learn about foods and to apply what they learn to their diets (36). Most likely, this motivation already exists in Mexican Pragmatists and Confident Independent Anglos, both of whom demonstrate a utilitarian approach to eating. The Anglos here also have the confidence to make change easily. Perhaps the ENEP approach which emphasizes getting the best food value for the money finds its most responsive audience among these practical types.

Anglos who were totally deviant made rapid progress and this may be because they are accustomed to out-of-the-ordinary food behavior and so are flexible enough to try something different.

Black and Mexican Hostiles present an interesting case. While this type of Black homemaker made rapid progress, the corresponding Mexican type was slow to improve. If hostility with regard to food is associated with a generalized hostility, then an element of dogmatism may be present in this type (1). It has been found that dogmatism is significantly related to the acceptance of new products (6) and to the acceptance of advice from a prestigious communicator (50). Black Hostiles may be more receptive than Mexican to female program aides who are in an authority position relative to themselves.

SUMMARY AND CONCLUSIONS

Market segmentation techniques developed by business to sell commercial products were used to characterize the "market" of Black, Anglo, Mexican, and Chinese homemakers participating in the Sacramento County Expanded Nutrition Program. Homemakers' level of dietary adequacy, time spent in the program and rate of improvement were predicted using the food attitude patterns derived in the study. Data could potentially be used by nutrition educators to develop educational approaches which are relevant to the ethnic groups and individuals with whom they work.

Aside from the contribution which this study has made to the application of the broadened marketing concept to consumer welfare, a contribution has been made towards the prediction of consumer behavior with personality variables. Attempts by marketing researchers to relate consumer behavior phenomena to personality variables have met with only limited success. Kassarian has suggested that consumer behavior researchers should "develop their own marketing oriented instruments to measure the personality variables that go into consumer behavior rather than use tools designed as part of a medical model to measure schizophrenia or mental stability" (26). In this study, an attempt has been made to do this by predicting consumer food behavior using only those characteristics of individuals which relate to food behavior.

Finally, techniques used here to help market food habit change could be applied to the marketing of other social products, including environmental responsibility and the acceptance of altered life styles necessitated by changing supplies of natural resources.

FOOTNOTES

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