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Relative Importance of Television Influences, Family Influences
and the Child's Personal Characteristics
on Children's Food Preferences

by

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B.A., University of Wisconsin-Milwaukee 1978

Presented in partial fulfillment of the requirements for the degree of

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1981

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Relative Importance of Television Influences, Family Influences and the Child's Personal Characteristics on Children's Food Preferences (113 pp.)

Director *BJ* D. Balfour Jeffrey and James A. Walsh *AW*

A number of different factors have been suggested to influence a child's food preferences, consumption and purchase influence attempts. These factors can be roughly categorized as television influences, family (parental) influences and personal characteristics of the child. The relative importance of each is still, for the most part, unknown. The present study is an attempt to assess a number of variables involved in these factors and begin to determine their relative importance through the utilization of the multiple regression model. A total of 35 variables were investigated; 4 variables utilized only as criterion variables, 21 variables utilized only as predictor variables and 10 variables utilized as both criterion and predictor variables in separate analyses. Subjects included 74 kindergarten age children and their parents. Information was gathered on television viewing patterns and a child's eating habits in the home, the family's socio-economic status, parental and child attitudes toward commercials, a child's nutritional knowledge, parent-child interactions regarding commercials and consumerism and personal characteristics of the child such as height, weight, sex and level of the child's understanding regarding commercial intent. The criterion variables included a child's actual consumption on a Behavioral Eating Test, a child's choices on a Pretend Eating Test, a child's purchase influence attempts and level of parental yielding to these attempts for both low and high sugar foods and a child's consumption of high-sugar foods in the home. The results revealed that it was possible to predict, with some success, most of the defined criterion variables. The most important predictor variables were found to be parental and child attitudes toward commercials, public television viewing levels, a child's eating habits in the home, socio-economic status and a child's physical characteristics. Due to the large number of variables assessed, further refinement and investigation was encouraged.

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Relative Importance of Television Influences, Family Influences
and the Child's Personal Characteristics
on Children's Food Preferences

Research into the variables that influence children's eating habits has increased dramatically in recent years. A review of the literature in this area suggests that these variables can be generally classified into three major groupings; media influences, family (parental) influences and characteristics of the child. While research has indicated that all three of these factors exert some demonstrable influence, the relative importance of each is still, for the most part, unknown.

Of all potential media influences, television is most often identified as having the greatest impact on preschool children because its combined visual and auditory presentation require little reading skill or other active participation. Additionally, data suggests that 96% (Lesser, 1974) to 98% (Nielson, 1978) of Americans have at least one television set in their homes. Pipes (1977) has looked at various statistics available from both the television industry and consumer agency sources and suggests that the "average" preschool child (below the age of six) watches television 26.3 hours per week. The current guidelines of the National Association of Broadcasters allow 9:5 minutes of commercial advertising during each hour of commercial programming. This means that the "average" pre-

school child mentioned before spends 15% of her* television viewing time, or 250 minutes a week, viewing television commercials.

Barcus and Wolkin (1977) carried out a content analysis of children's programming on a typical Saturday and Sunday morning in Boston, Massachusetts in April 1975. Their findings revealed that 68% of all commercial announcements were for food products; 25% for cereals (with presweetened cereals outnumbering unsweetened cereal by a ratio of more than three to one); 25% for candy and other sweets, 4.8% for snacks and other canned or prepared packaged foods. An additional 10% of the commercial spots advertised quick meals and eating places. Only 3.2%, a total of 13 out of a population of 390 commercial announcements shown during this particular Saturday and Sunday morning, were for fruits, fruit juices, bread, milk and other dairy products. Conspicuous in their absence were any commercials for meat or vegetables.

In assessing television's potential impact as a teaching medium, Gussow (1972) suggests that:

...(t)he most powerful messages television delivers are its implicit ones- the things it sells us when we don't even know we are being sold. The heavy advertising of beer and soft drinks, for example, delivers a message far more potent than the urging to buy any single product.

*In order to be as nonsexist as possible, and still remain unencumbered by excessive verbiage, male and female pronouns will be used interchangeably to denote the population of interest.

In terms of this message, it doesn't really matter whether someone going to the refrigerator gets out a Pepsi or a Coke, a 7-up or a Budweiser. What really matters is that a thirsty American in the 1970's goes to the refrigerator to open up a container rather than to the sink to open up the tap (p. 50).

The techniques used by the advertising industry to sell products depends upon the targeted audience. Most research into the relative effectiveness of specific techniques in children's advertising is carried out by the advertising agency and the results furnished only to the sponsor, not to the general public. However, it seems unlikely that food manufacturers and distributors would invest heavily in advertising unless it resulted in increased sales, so it becomes possible, through a content analysis of children's ads, to discover which techniques are being utilized in the attempt to sell children on some particular product. For example, Barcus and Wolkin (1977) found that animation was used either exclusively or in conjunction with real persons in 42% of all commercials on Saturday and Sunday mornings and much less frequently when the audience was not made up wholly of children. The same pattern was true for other "magical" events other than animation. Mauro and Feins (1977) conclude that "obviously, animation is considered more entertaining and exciting for children who believe in its reality." The opposite trend was true for the dissemination of actual product information such as price, weight, size, ingredients and warnings which occurred much more frequently when children were not the sole audience.

Barcus and Wolkin (1977) found that the basic themes used to sell foods to children were taste, texture, fun, convenience, peer status and health and nutrition. Interestingly, most cereals use multiple themes and nutrition was suggested through the phrase "vitamin fortified" which nutritionists (Gussow, 1972) suggest is misleading to both children and adults. Premiums and contests were utilized during 17% of all commercials during children's weekend television. Nearly half of all advertisements for cereals utilized premium offers (Barcus and Wolkin, 1977). Mauro and Feins (1977) suggest that this creates an artificially high demand for a product by creating a desire for a premium unrelated to the product itself. Lastly, Barcus and Wolkin (1977) found that in 90% of commercial announcements to children, males "spoke for the product" and this most frequently was an adult male. It has been suggested (Mauro and Feins, 1977) that children are most susceptible to the influence and suggestions of adult authority figures, typified by the adult male. In general, Choate (cited by the National Science Foundation, 1978) likens children's advertising to:

...a tug of war between 200-pound men and 60-pound youngsters. ...A \$1,000-per-commercial scriptwriter, actors, lighting technicians, sound-effects specialists, electronic editors, psychological analysts, focus groups and motivational researchers with a \$50,000 budget on one end and the 8-year-old mind...with 50 cents on the other...(p. 220).

Several studies have distinguished heavy viewers from children who watch an average amount of television or less (Atkin, Note 1; Atkin, Reeves & Hocking, Note 2; Dussere, Note 3; Rossiter & Robertson, Note 4; Sharaga, 1974; Ward, Wackman & Wartella, 1977, Note 5). Heavy viewers differed from the light viewers in that they were more materialistic in their attitudes and placed more trust in commercials (Atkin, Note 1), held more favorable attitudes towards commercials in general (Atkin, Note 1; Rossiter & Robertson, Note 4), ate more highly sugared products (Atkin et al., Note 2, Dussere, Note 3; Sharaga, 1974) and expressed stronger behavioral intentions towards products they had seen advertised (Atkin, et al., Note 2; Galst & White, 1976; Robertson & Rossiter, 1976). Additionally, children that watched television more heavily did not differ from their more average viewing counterparts along some other important dimensions such as being able to understand the intent of commercials and in the acquisition of general consumer skills (Ward, Wackman & Wartella, Note 5).

Ward, Wackman and Wartella (1977, Note 5) have identified four classes of environmental influences which they expect to affect consumer socialization of the child. These include (1) goals parents have for their childrens' consumer learning (2) the parents' actual behavior as consumers (3) parent-child interaction regarding consumerism and (4) the

child's opportunity for independent consumer behavior. Ward et al. (1977, Note 5) suggest several specific factors that are involved in each of these four major classes of environmental influences.

Parental attitudes toward commercials directed at children have been hypothesized to be a valuable indicator of parent's goals for their children's consumerization (Atkin, Note 6; Feldman, Wolf & Warmouth, 1977; Ward, Wackman & Wartella, 1977, Note 5). Overwhelmingly, the literature suggests that a majority of parents hold negative attitudes toward children's advertising in general (Atkins, Note 1; National Science Foundation, 1978; Sharaga, 1974; Ward, Wackman & Wartella, 1977, Note 5). However, some researchers (Atkin, Note 1; Sharaga, 1974) have attempted to further assess the salience of this parental attitude by measuring the degree to which parents support a ban on advertising directed at children. Their findings suggest a clear majority of parents opposed to the banning of children's advertising. It has been suggested (National Science Foundation, 1978) that a reduction in children's advertising could result in a concurrent reduction in children's programming. Atkins (Note 1) concludes that a majority of parents are "willing to pay the price" in order to maintain children's programming at its current level.

The parent's actual consumer behavior was found by Ward, Wackman and Wartella (1977) to have mixed effects on children's

consumer-skill variables at the kindergarten level. The influence of the parent's actual consumer behavior became increasingly important as the age of the children studied increased. However, a study done by Clancy-Hepburn, Hickey and Neville (1974) indicated that kindergarten age children whose mothers have a good understanding of the nutritional claims made in advertising, which, presumably, should directly influence consumer behavior, report experiencing significantly lower preferences and purchase requests, as well as lower consumption by their children, of nutritionally unsound products.

An obviously important influence, which has often been overlooked in the behavioral research on children's food preferences, is the actual day-to-day diet of the child. Sharaga (1974) found that one-third of the children in her survey had low nutrient intakes, operationally defined as below 67% of the Recommended Daily Allowance, for iron, vitamin A, vitamin C and thiamine. Other research, most notably statistics compiled by the Department of Health, Education, and Welfare (1974) has identified these 4 nutrients as "problem nutrients" in children's diets. Sharaga (1974) found a positive correlation between dietary intake and socio-economic status and between dietary intake and mother's educational level. Although Sharaga (1974) reported that children from lower socio-economic families and children whose mothers have lower

educational levels tend to watch more television, she did not specifically report the correlation between dietary intake and the amount of television viewing by either the mother or child.

Other research has also indicated a significant relationship between television viewing and socio-economic status (Robinson, 1971; Ward, Reale & Levinson, 1971). Rossiter and Robertson (1975) found differences among the reports of children and parents in total viewing time, co-viewing time, parental control over the child's viewing and level of parent-child interaction with discrepancies in parental reports tending to be in a socially desirable direction. When examining social class, this tendency was more pronounced among upper socio-economic status parents. These findings are not conclusive and suggest that the distinction between viewing patterns and social class is still unclear.

Perhaps the most interesting and least studied of the potential family influences are the actual parent-child interactions regarding commercials and consumerism. These seem to fall into two major categories; interactions initiated by the parent, which occur most frequently during or immediately following a commercial message directed at the child, and interactions initiated by the child in the form of purchase requests, usually occurring in a shopping situation or in the home while contemplating a shopping excursion. Ward, Wackman

and Wartella (1977) have found that parent-child interactions are of greater importance in improving the consumer skills of kindergarteners and become less important as the age of the population of children under study increases. The amount of actual parent-child co-viewing seems to be an important prerequisite for parent initiated conversations concerning commercial content or intent. However, Rossiter and Robertson (1975) found that the amount of co-viewing reported by the parent in a survey situation is likely to be inflated toward a more socially desirable response. Therefore a less reactive measure, such as a television log, is suggested for further study.

Purchase influence attempts have already been suggested as an important indicator of child-initiated conversations with the parent about consumerism. Further, there seem to be two major components within this indicator. One is the frequency with which the child attempts to influence purchases. Young children tend to make more frequent purchase influence attempts than older children (Atkin, Note 6; Clancy-Hepburn, et al., 1974; Robertson & Rossiter, 1976; Ward & Wackman, 1972). Logically, the second major component is the frequency with which parents yield to purchase influence attempts made by their children. It has been found that parental yielding is substantial, at least for child relevant products (Atkin, Note 6; Ward & Wackman, 1972). Further, parental yielding seems

to be a function of not only the product, but of the age of the child, social class level and parental knowledge and attitude (National Science Foundation, 1978). Children's requests provide an opportunity for parental teaching regarding the economic or nutritional value of the product in question. This opportunity is missed if the parent either acquiesces or denies a purchase request without further explanation. However, research has indicated, especially in regard to purchase request denials, that few parents simply say "no" without further explanation (Atkin, Note 6; Ward, Wackman & Wartella, 1977).

The fourth class of environmental influence identified by Ward, Wackman and Wartella (Note 5, 1977) concerns the child's opportunity for independent consumer behavior. At the kindergarten level, this variable overlaps considerably with purchase influence attempts made by the child. As the age of the population of children under study increases, the opportunity for making independent purchases also rises.

The final class of variables to be addressed concerns the personal characteristics of the child, which have been suggested as important influences in what a child chooses to eat. Although parental attitude regarding commercials directed at children has been identified as an important factor, little attention has been directed at the child's attitude toward television commercials. Similar to the measurement of parental attitudes toward commercials, two components of the child's

attitude need to be assessed. The first concerns the child's general attitude toward advertising and the second concerns the child's attitude relative to the programming content. Although Galst and White (1976) found the reinforcing value of programs versus commercials to be dependent upon the actual content of each, it seems reasonable to assume that children can make some statement regarding their general attitude concerning program and commercial content. If strongly held negative attitudes toward children's commercials on the part of the parent have been found to influence children's behavior, it seems reasonable to assume that a similar attitudinal stance by the child will also be influential.

Goldberg, Gorn and Gibson (1978) attempted to assess the child's level of nutritional knowledge by asking children to rate 36 different foods as "healthy and good for you" or "not healthy and bad for you". They found that children by the age of five demonstrate their ability to do this task with a high degree of accuracy. Surprisingly perhaps, they also found that while a five year old is proficient at making this differentiation, this knowledge alone seems to have relatively little effect upon what children ultimately report as food preferences.

Finally, an individual child's height and weight have been found by Jeffrey, McLellarn, Fox, Lemnitzer and Hickey (Note 7) to be important covariates in the amount children

actually eat within a free choice situation . While this seems to be an obvious variable for consideration, it has, for the most part, been overlooked in other research in this area. Similarly, the sex of the child has been suggested by Fox, Jeffrey, Dahlkoetter, McLellarn and Hickey (Note 8) to be another variable which may influence the amount a child actually eats.

Research has suggested that all of the previously discussed variables exert some influence on children's eating habits. Although these variables can be categorized on paper, in reality they overlap and interact. The proposed study will assess a number of variables within the more general categories of media influences, family (parental) influences and personal child characteristics. The current study is an attempt to begin to sort out the relative importance of different variables in the actual prediction of children's food preferences.

The criterion variables of interest concern children's preferences within a free choice situation. Because children's responses on self-report measures of food preferences was found to be highly disparate from actual behavioral measures (Jeffrey, Lemnitzer, Hickey, Hess, McLellarn & Stroud, 1980, Jeffrey, et al., Note 7; Lemnitzer, Jeffrey, Hess, Hickey & Stroud, Note 9; Fox, et al., Note 8) actual eating behavior will be one of the criterion variables utilized. The Behavioral Eating Test (BET) developed at the University of Montana by Jeffrey, et al., (1980) has been demonstrated as

result from a combination of the child's own personal characteristics as well as prior family and media influences. Similarly, the child's purchase influence attempts will be utilized as both a criterion and predictor variable in the current study. Some researchers (notably Galst & White, 1976) have considered purchase influence attempts as a dependent variable related to the reinforcing value of commercials to the child and the number of commercial television viewing hours. Other researchers (Ward, Wackman & Wartella, 1977) have suggested that purchase influence attempts are an indication of child-initiated conversations about consumerism and, as such, may aid in the prediction of a child's subsequent free choice food preferences.

Although there has been virtually no research into the long term stability of food preferences, it seems likely that preferences formed in childhood will influence, to some extent, food preferences later exhibited in adulthood. Much concern has been voiced about children's eating habits by nutritionists, physicians, dentists, psychologists and sociologists. This study begins to address the problem of determining the relative contribution of a number of factors which interact and result in children's free choice food preferences. Ultimately, the identification of such factors may aid in the identification of nutritionally high-risk children and in treatment and educational programs utilized to encourage children in the adoption of sound, life-long nutritional patterns.

MethodSubjects

A total of 74 children, 47 males and 27 females, and their primary care parent was utilized in this study. The children averaged 6 years, 4 months of age with a range of 5 years, 5 months to 7 years, 1 month, and a standard deviation equal to 5 months. This sample was selected from a population of kindergarten classes in a public school located in East Missoula. This school was assigned for experimental investigation by the district administrator of the Missoula Public School system. An introductory letter requesting participation was mailed to the home of each child enrolled in the five kindergarten classes. (See Appendix A for a copy of this letter.) A total of 100 letters was sent out and a concordance rate of 74% was obtained. Once an initial agreement to participate was received, no one failed to complete the required tasks. The kindergarten children in these classes came from two distinct geographic and socio-economic areas. One area, the Rattlesnake, generally consists of middle, upper middle, and upper class families, while the second area, East Missoula, is generally made up of middle and lower middle income families. Kindergarteners were used for this study because they: (a) are young enough to still be establishing food preferences; (b) are still amenable to parental influences; (c) watch large amounts of television; and (d) are old enough to fill out simple paper and pencil forms.

Design

The purpose of this study was to assess the contribution of three general factors in determining children's food preferences: television advertising, family (parental) influences, and child characteristics. The multiple regression model was used to build a model of food preference behavior.

Criterion Variables

Behavioral Eating Test

This measure was utilized in order to obtain a behavioral measure of what a child actually eats and drinks in a free choice situation. Each child was presented with 10 familiar foods and beverages in individual clear plastic glasses which were arranged randomly, for each child, on a plexiglass tray. Children were asked to name each of the 10 foods to insure that all foods were familiar to the child. The foods and beverages were equally divided into high and low nutritional categories. The child had eight minutes in which he could eat as much as he wanted of anything on the tray. The child's consumption was measured in grams and milliliters by subtracting the measurements before and after the child sampled the food. These values were later converted to calories through the use of standard tables and the percentage of calories contributed by high nutritive food stuffs to total caloric intake was determined.

The measure of converting food consumed in grams and milliliters to calories is not without problems. For example, a child may eat a large quantity of a food such as

carrots which, because of their low calorie content, have considerable mass but add little to total caloric intake. For foods such as presweetened cereals, this pattern is reversed with little mass contributed relative to the overall caloric contribution. In order to determine the most representative manner in which to characterize the data, the percentage of grams and milliliters contributed by high nutritive food stuffs to total gram/milliliter intake was also determined and used in the multiple regression analysis. The detailed procedure for giving the BET is published elsewhere (Jeffrey, et al., 1980; Note 7). This procedure used in this study is detailed in Appendix L.

Other research (Jeffrey, et al., 1980; Note 7) with the BET has found that the individual foods generally had standard deviations greater than the means and highly variable test-retest correlations. To overcome this problem, individual food items have been combined into 10 total score variables which eliminated the problem of standard deviations being greater than the means, reduced variability and increased test-retest correlations. In the current study, the only total score variables of interest are (1) total calories pro-nutrition foods and beverages and (2) total calories all foods and beverages, which have been shown (Fox, et al., Note 8) to have test-retest correlations of .773 and .867, respectively. No test-retest correlations are currently available for the gram or milliliter measures.

Interrater reliability for pre-post weighing of each food in grams or determining the volume of each beverage in

milliliters has been found (Jeffrey, et al., Note 7) to have a mean percentage agreement of 95.8 during the training period of experimenters and an agreement of 100% during the actual testing of subjects. In the current study, an interobserver reliability check calculated on approximately every fifth subject yielded a mean percent agreement of 100%.

Pretend Eating Test

The second criterion measure assessed, via a self-report instrument, a child's food preferences in a free choice situation. The Pretend Eating Test (PET) is based on a procedure developed by Goldberg, et al., (1978). The PET was modified for this study and the details for administering the PET can be found in Appendix M. The procedure was modified to include the use of actual foods, rather than picture representations. In general, the child is asked to pretend that the experimenter is babysitting for the child while the parents go on vacation. The child is then presented with six snack or breakfast foods, in original package or uncut form, and asked to select three foods from each group that he would like to eat while the experimenter is babysitting. This procedure is repeated six times, for each subject, and includes four snack and two breakfast food groupings. The order of food presentation was randomized for each child within each food grouping. The child chooses a total of 18 foods from the 36 hypothetical snack and breakfast foods available, and the number of pro-nutrition foods chosen is used as a dependent variable.

Criterion and Predictor Variables

Purchase Influence Attempts and Subsequent Buying

Galst and White (1976) have concluded that a relationship exists between the reinforcement value of television advertisements for children and their persistence in attempting to influence parental grocery purchases. A similar relationship was noted between the number of hours a child viewed commercial television and the number of purchase influence attempts made. In the current study, parents were asked to indicate, with Likert scale responses, how often their child requested each of 28 foods listed. After parents had estimated the frequency of purchase influence attempts, they were asked, again with Likert scale responses, to estimate how often each product was purchased following the child's purchase request. (See Appendix J.) The foods were factor analyzed into categories, high nutrition (low-sugar) food stuffs and low nutrition (high-sugar) food stuffs. Four summed scores, two for the frequency of request and two for relative success of requests, were utilized.

Although this variable has been most often treated within the literature as a variable dependent upon the child's viewing level and attitudes toward commercials, this variable can also be viewed as an indication of child-initiated conversations about consumerism. The research has suggested that when parents deny a purchase request, they are also likely to offer an explanation usually related to the nutritional or economic value of the item in question (see introduction citations). In a separate analysis, the frequency and relative success of the child's influence attempts will also be examined as one of the variables that may aid in the prediction of children's free choice food preferences on the BET and PET.

Three day Food Record

One direct way in which parents influence children's food preferences is the type of diet served the child on a day-to-day basis. Parents were asked to record all foods and liquids served their child for a three day period. To aid parents in their recording, they were provided an example from which to model (see Appendix F). This information was then analyzed by a statistical package called AGNET which yields the average daily percentage of the recommended daily allowance (RDA) supplied by the diet for calories, protein, thiamine, calcium, iron, riboflavin, niacin, vitamin A, and vitamin C. (See Appendix G.) Two other variables, not standard to AGNET, were created to further differentiate those children who consumed a larger portion of high-sugar food stuffs. These variables were the number of high-sugar foods consumed by the child in the three days and the number of calories contributed by these foods in the same three day period.

Predictor Variables

Number of hours child watches television in one week

Number of hours parent watches television in one week

Number of hours of co-viewing (parent-child) in one week

Research has suggested that several distinguishing characteristics are found between families and children who differ in their patterns of television viewing (see introduction citations).

In order to assess these differences, the number of viewing hours for each family member was assessed across two response modalities. The first utilized a self-report measure similar to that used by Sharaga (1974) which presented parents with lists of blocked time (e.g. Saturday mornings, weekday afternoons, Sunday dinnertime) and asked parents to estimate the number of viewing hours for both parents and child during a typical week. (See Appendix D.) Parents were also asked to keep a television log for one week. In order to help insure that parents made accurate recordings, the television logs were kept as simple as possible. Each family was given data sheets on which to record, for one week, each half hour period the television was in use, whether the station viewed was commercial or public and who was watching. (See Appendix E.) To increase the consistency of parental recording, two telephone contacts were made with the family during the week the log was kept, general encouragement was given and any problems encountered by the parents regarding the recording of data for the television log were dealt with. Number of total weekly viewing hours logged for parents, children and co-viewing constituted independent variables. The ratio of co-viewing hours to the child's total viewing hours was also assessed as a predictor variable. Additionally, the ratio of public to commercial television viewing was assessed and entered as predictor variables for parents, children and co-viewing.

Socio-economic Status

Although research into the effects of socio-economic status are not clear, several studies have suggested significant differences in both viewing and eating patterns between families of high and low socio-economic levels (see introduction citations). Parents were asked to provide information relevant to educational level and occupational status. (See Appendix B.) On the basis of these two measures each family was awarded one of five socio-economic designations based upon Hollingshead's Two-Factor Index of Social Position (Note 11) with 1 representing high socio-economic status and 5 representing low socio-economic status. (See Appendix C.)

Parental Attitude toward Commercials directed at Children

It seems reasonable to assume that parents of children this age have a great deal of influence upon the attitudes and beliefs adopted by their children. Parental attitudes toward commercials were assessed in two ways. The first measure assessed parental attitudes toward commercials in general. This scale utilized nine questions found by Sharaga (1974) to form a valid and reliable measure of parental attitudes toward advertising (see Appendix H). A general attitude score was determined by summing parental responses across all nine questions. The second measure assessed parental attitude toward advertising directed at children. This attitude was assessed via a seven point

Likert scale with a value of one being strongly positive and a value of seven being strongly negative. However, research has shown that while parents typically express negative attitudes about children's advertising in general, these attitudes are not, for the most part, strongly held (see introduction). A second seven point Likert scale assessed parental attitudes toward advertising directed at children if a reduction in children's advertising were to result in a concurrent reduction in children's programming. (See Appendix I.) A Likert scale value of one indicated a desire for an increase in children's advertising and programming, a scale value of four indicated an acceptance of the status quo and a scale value of seven indicated a desire for a total ban on children's advertising regardless of the potential reduction in children's programming.

Occurrence of parent-child conversations about the content or intent of commercials

One of the most straight-forward ways in which parents may attempt to teach their children a healthy skepticism toward advertising is through direct conversations with their child about the content or intent of commercials. Parents were asked whether they recalled having such a conversation and, if so, were asked to give an example of the sort of thing they had said. If the parent recalled having had such a conversation and gave an example that concerned the selling intent of commercials in general or the attri-

butes of a specific product, they were assigned a score of one. If either of these conditions were not met, they received a score of zero. Additionally, parents were asked to give an estimate of the frequency of such conversations ranging from often- several times a week, which received a score of five, to almost never, which received a score of one. (See Appendix K.) Similarly, children were asked if they recalled having talked with their parents about commercials. An affirmative response was coded one while a negative response received a score of zero. Additionally, children were asked why commercials are shown on television. Responses that showed little or no understanding, (I don't know. Because they are important.), received a score of one. Responses that showed a medium level of understanding, (Shows where you can buy stuff. To advertise things.), received a score of two. Responses that indicated a high level of understanding, (Talk you into buying stuff. So they can make money when you buy things. To help pay for the show.), received a score of three. (See Appendix O)

Child's attitude toward commercials

Like parental attitudes regarding commercials directed at children, the child's attitude is also presumed to be an important indicator of the degree of influence the commercial may have on the child. If the child finds advertising attractive, he will be more likely to attend to the message, which, in turn, would presumably increase the effectiveness of the persuasive message contained in the advertising.

Children were asked two questions with Likert scale responses to assess their attitudes toward advertising. The first asked generally how much the child liked commercials she saw on television. The second asked the child how much she liked commercials in relation to the programming she saw. The questions were simply phrased and a series of faces ranging from smiling to frowning were presented as a referent for the child to mark. (See Appendix P)

Child's nutritional knowledge

A child's ability to discriminate between healthy and unhealthy foods is another variable that may prove influential in determining what foods a child chooses to eat in a free choice situation. Children were asked to rate 36 different foods as "healthy and good for you" or "not healthy and bad for you". (See Appendix N) The number of correct choices was entered into the multiple regression equation.

Time of child's interview

The administration of the criterion measures involved assessing a child's actual eating behavior. Appetitive behavior on these measures would, potentially, be affected by the proximity in time to the child's last meal. Therefore, time of administration of the criterion measures incorporated into the child's interview was entered into the regression equation to the nearest half-hour.

Child's weight

Child's height

Research has shown these two variables to be important

covariates in the amount of food children actually eat in a free choice situation. Height in inches and weight in pounds were measured by a reliable balance beam scale.

Child's sex

Research has suggested that the sex of the child may also be an important variable in the amount of food a child actually consumes in a free choice situation. This variable was coded as zero or one for male or female, respectively.

Informed Consent

The initial contact was made with the school administration involved. At this time, the purpose, intent and procedures of the study were explained. Subsequently, a letter describing the study was sent to the parents and a signed release was obtained for both parent and child participation. (See Appendix A.) Both parents and children were informed of their right to terminate the interviews at any time. Following data collection, parents were thanked and the AGNET analysis of their child's diet was mailed to them. Parents were also given access to the final results as that information became available and a \$100.00 contribution was made to the local PTA in order to thank parents and children for their participation.

Data Gathering

A total of three interviews were necessary; two with the parent and one with each child. The interviews with the children took place in a trailer parked outside of the child's school. The parent interviews were conducted in the parent's

home or on the University campus, whichever was most convenient. During the first parent interview, information regarding educational attainment and occupational status was recorded and parents were asked via a self-report measure to estimate their typical television viewing patterns. They were then instructed as to the keeping of the television log. They were also instructed as to the keeping of the three-day food record and the results of the computer analysis used to determine the adequacy of their child's diet was made available to each parent at the end of the study. During the next week, experimenters contacted parents twice by phone to give encouragement and to handle any problems which arose regarding the keeping of the television log or the three-day food record. Approximately eight days after the first interview, the experimenter again met with the parent. At this time, the completed television log and three-day food record were collected. Additional data regarding the parent's general attitude toward commercials and toward advertising directed at children were assessed. Additionally, the parent's estimate of the frequency and success of purchase influence attempts made by their child and information regarding the occurrence of parent-child conversations concerning the content or intent of advertising was gathered.

Shortly following the completion of the two parental interviews, data was gathered on the child. First, the child was presented with the Behavioral Eating Test, followed

by the Pretend Eating Test and an assessment of the child's nutritional knowledge. The children were then interviewed as to their recollection of conversations they may have had with their parents regarding commercials as well as their conception of why commercials are shown on television. Next, data concerning the child's attitude toward advertising were assessed and finally, the child was weighed and measured. The child's sex was also coded for entry into the multiple regression.

Results

A total of 35 variables was utilized in various combinations in a multiple regression model. These variables are listed and explained in Table 1. The variables, as listed in Table 1, are organized so as to present those variables utilized only as criteria first and those variables utilized only as predictor variables last. The middle section labeled criterion or predictor variables includes all those variables which were utilized as both criterion and predictor variables in separate regression equations. Table 2 again lists each of the 35 regression variables along with their means, standard deviations and the range of scores obtained by the population under study.

A step-up regression (see table 3), with an initial $F(1,72)$ to enter equal to 3.98 and a secondary F to enter of 2.00, revealed that children tend to eat a higher proportion of nutritious calories on the BET when, in descending order of magnitude: (1) they ate a smaller number of low nutrition foods at home; (2) they held a more negative attitude toward commercials they viewed on television; (3) they had less understanding of why commercials were shown on television; and (4) their parents reported talking to their children frequently about commercials.

None of the independent variables reliably predicted the ratio of grams contributed by pronutritional foods to total grams on the BET or the number of pronutritional choices on the PET.

A factor analysis was carried out to determine the relationship between foods composing both measures of purchase influence attempts (PIAs) and the relative success of PIAs. Based on a scree test, each

TABLE 1
Regression Variables

Acronym	Operational definition	Method of entry	Scoring key
Criterion Variables			
BETCa1	Ratio of pronutritional to total calories consumed on the BET	Calories pronutritional divided by total calories	High score: Higher proportion pronutritional calories.
BETG	Ratio of pronutritional to total grams consumed on the BET	Grams pronutrition divided by total grams	High score: Higher proportion pronutritional grams.
TotalC	Total calories consumed on the BET	Sum of all calories eaten on the BET	High score: Increased calories consumed
PET	Child's food choices on the Pretend Eating Test	Number of pronutrition foods chosen	High score: Higher pronutrition choices.
Criterion or Predictor Variables			
PIANut	Frequency with which a child requests pro-nutrition foods	Sum of 16 foods	High score: Fewer requests for pronutrition foods.
PIAJunk	Frequency with which a child requests low nutrition foods	Sum of 10 foods	High score: Fewer requests for low nutrition foods.
BuyNut	Frequency with which parents purchase pronutrition foods following a request	Sum of 14 foods	High score: Fewer nutritious foods purchased following PIA.
BuyJunk	Frequency with which parents purchase low nutrition foods following a request	Sum of 9 foods	High score: Fewer low nutrition foods purchased following PIA.

Acronym	Operational definition	Method of entry	Scoring key (cont)
PIA	Frequency with which child requests foods in general	Sum of PIANut and PIAJunk	High score: Fewer PIA's in general.
Buy	Frequency with which parents purchase foods following a request	Sum of BuyNut and BuyJunk	High score: Fewer purchases in general, following requests.
Nut	Frequency and success of PIA's for nutritious foods	Sum of PIANut and BuyNut	High score: Lower frequency and success of PIA's for nutritious foods.
Junk	Frequency and success of PIA's for non-nutritious foods	Sum of PIAJunk and BuyJunk	High score: Lower frequency and success of low nutrition PIA's.
JunkCal	Calories contributed by high-sugar foods on 3-day food record	Sum of high-sugar calories	High score: Increased high-sugar calories.
JunkNo	Number of high-sugar foods listed on 3-day food record	Frequency count	High score: Higher number of high-sugar foods.
Predictor Variables			
LogTVP	Number of hours of television logged by parents in one week	Sum of all public and commercial TV viewed	High score: High number of hours
Log TVK	Number of hours of television logged by child in one week	Sum of all public and commercial TV viewed	High score: High number of hours.
LogTVC	Number of hours of coviewing (parent-child) in one week	Sum of all public and commercial TV coviewed	High score: High number of hours.
RatC	Ratio of coviewing hours to the child's total viewing hours	LogTVC divided by LogTVK	High score: High level of coviewing.

Acronym	Operational definition	Method of entry	Scoring key (cont)
R PubP	Ratio of public to total hours of TV viewed by parent	Hours of public TV divided by total hours of TV viewed	High score: High proportion of public TV viewed.
R PubK	Ratio of public to total hours of TV viewed by child	Hours of public TV divided by total hours viewed	High score: Higher proportion of public TV.
R PubC	Ratio of public to total hours of TV covieved by parent and child	Hours of public TV divided by total hours covieved	High score: Higher proportion of public covieving.
SES	Families socio-economic status	Scored 1 (high) to 5 (low)	High score: Lower SES
PA Tot	Parents attitude toward ads they see on TV	Sum of 9 general attitude items	High score: Negative attitude
PA K Tot	Parents attitude toward ads shown on childrens programming	Sum of two attitude measures	High score: Negative attitude
Pa Talk	Parents report of the occurrence of conversation with child about ads	Scored 0 (does not occur) or 1 (occurs)	High score: Occurrence of conversations
PFreq	Frequency with which parents talk to their child about ads	Scored 0 (never) to 5 (often)	High score: Increased frequency
K Talk	Childs report of the occurrence of conversation with parent about ads	Scored 0 (does not occur) or 1 (occurs)	High score: Occurrence of conversations
K Undng	Childs understanding of why ads are shown on TV	Scored 1 (no understanding) to 3 (high understanding)	High score: Increased level of understanding
K At Tot	Childs total attitude toward commercials viewed on TV	Sum of two attitude measures	High scores: Negative attitude
K At T Ad	Childs attitude toward ads	Scored 1 (likes ads a lot) to 5 (dislikes ads a lot)	High scores: Negative attitude

Acronym	Operational definition	Method of entry	Scoring key (cont)
NET	Childs ability to discriminate healthy from unhealthy foods	Number correct out of 36	High score: Increased discriminatory ability
Time	Time of day at which child was interviewed	Time recorded to the nearest half hour	High score: Afternoons
Weight	Childs weight	Recorded in pounds	High score: Greater weight
Height	Childs height	Recorded in inches	High score: Taller
Sex	Childs sex	Scored 0 (male) or 1 (female)	High score: Female

Table 2
Means Standard Deviations and
Obtained Ranges of Regression
Variables

Acronym	Mean	Standard Deviation	Obtained Range
BETCa1	.195	.213	.003 - 1.00
BETG	.387	.260	.022 - 1.00
TotalC	417.397	199.600	4.5 - 1033.96
PET	6.527	3.044	0 - 17
PIANut	69.284	7.652	34 - 107
PIAJunk	37.351	10.263	16 - 61
BuyNut	57.635	25.058	64 - 163
BuyJunk	40.392	10.502	19 - 71
PIA	106.635	23.433	64 - 163
Buy	98.027	29.870	49 - 189
Nut	126.919	40.689	66 - 233
Junk	77.743	18.978	48 - 132
JunkCa1	221.824	156.955	7 - 726
JunkNo	13.419	5.715	3 - 29
LogTVP	18.784	15.926	0 - 92
LogTVK	15.459	10.051	0 - 48
LogTVC	4.149	4.359	0 - 18
RatC	.303	.406	0 - 1
R PubP	.013	.038	0 - .190
R PubK	.063	.140	0 - .857
R PubC	.017	.068	0 - .500
SES	2.770	1.028	1 - 5

Table 2.
(cont)

Acronym	Mean	Standard Deviation	Obtained Range
PATot	32.986	4.624	23 - 45
PAKTot	10.041	2.332	3 - 14
PaTalk	.622	.488	0 - 1
PFreq	1.824	1.770	0 - 5
KTalk	.203	.405	0 - 1
KUndng	1.446	.724	1 - 3
KAtTot	5.905	2.353	1 - 5
KAtAd	2.081	1.515	1 - 5
NET	28.270	5.980	12 - 36
Time	11.392	1.922	8.5 - 15
Weight	47.892	5.511	35 - 61
Height	47.068	2.141	42 - 55
Sex	.365	.484	0 - 1

Table 3
Regression Table for the Ratio of Pro-nutrition Calories Consumed on the BET

BETCa1				
	SS	MS	Regression Weight ***	F Total
JunkNo	.20302	.20302	-.24714	4.68358
	3.12101 *	.04335 *		
KAtTAd	.33079	.16540	.19699	3.031 **
	2.99324 *	.04216 *		
KUndng	.44245	.14748	-.18377	2.713 **
	2.88158 *	.04117 *		
PFreq	.53324	.13331	.17146	2.245 **
	2.79079 *	.04045 *		

* Residual

** Without replacement

*** $BETCa1 = .31576 + JunkNo(-.00888) + KAtTAd(.02756) + KUndng(-.06670) + PFreq(.02067)$

measure yielded two factors which accounted for about 35% of the total variance. In each case, two factors were rotated to a varimax definition of simple structure and the rotated solutions yielded two unambiguous factors comprised of nutritious (low-sugar) and non-nutritious (high-sugar) foods. A few foods with low communalities on each factor were excluded. These included yogurt and coffee for the measure of purchase influence attempts. Excluded from the factors measuring the success of PIAs were yogurt, coffee, peanut butter and unsweetened cereals. (See Appendix Q for a complete list of foods loading on each factor.) Thus, four new variables were created: PIAs for high-sugar foods; PIAs for low-sugar foods; relative success of high-sugar PIAs; and relative success of PIAs for low-sugar foods.

The four variables comprising PIAs and their relative success were examined as both predictor and criterion variables. With the exception of two adjunct analyses which utilized the two created variables from the three-day food record as criterion variables, all other regression analyses utilizing these variables as predictors were non-significant.

When PIAs for nutritious (low-sugar) foods was utilized as a criterion variable, it was found that children made more requests for these foods when: (1) they held a more positive total attitude toward commercials they view on television; (2) they weighed relatively more; (3) their parents reported talking to them about commercials while (4) they reported their parents did not talk to them about advertising; and (5) there was a higher proportion of parent-child coviewing of public television. The details of the analysis are presented in Table 4.

Table 4

Regression Table for Purchase Influence Attempts for Nutritious Foods

PIANut				
	SS	MS	Regression Weight ***	F Total
KATot	1267.84	1267.84	.23610	4.25031
	21477.20 *	298.29 *		
Weight	2592.09	1296.04	-.24439	4.665 **
	20152.95 *	283.84 *		
PaTalk	3973.19	1324.40	-.25334	5.150 **
	18771.85 *	268.17 *		
KTalk	4666.97	1166.74	.17770	2.648 **
	18078.07 *	262.00 *		
RPubC	5259.16	1051.83	-.16590	2.303 **
	17485.88 *	257.15 *		

* Residual

** Without replacement

*** $PIANut = 97.79839 + KATot(2.32658) + Weight(-.78441) + PaTalk(-9.39333) + KTalk(9.36928) + RPubC(-42.93568)$

When PIAs for non-nutritious (high-sugar) foods was utilized as a criterion variable, a bifurcated result was obtained due to the use of two slightly different sets of predictor variables. The first analysis utilized the absolute number of television viewing hours (LogTVP, LogTVK and LogTVC) among the predictor variable set. The analysis revealed that children requested more low-nutrition food stuffs when: (1) their parents held a positive attitude toward advertising they saw on television; (2) they came from lower socio-economic status families; (3) they were female; (4) they ate more high-sugar calories in the home; and (5) they had a positive total attitude toward commercials. The details of the analysis are presented in Table 5.

However, a second analysis, which utilized a ratio of commercial to public television viewing (R_{PubP}, R_{PubK} and R_{PubC}) along with the other predictor variables, suggested a slightly modified set of predictors. Children requested more high-sugar foods when: (1) their parents held a positive attitude toward commercials they viewed on television; (2) they watched a lower proportion of public television; (3) they came from lower socio-economic status families; (4) they ate more high-sugar calories in the home; and (5) they were female. The details of the analysis are presented in Table 5.

When the analysis of the relative success of PIAs for non-nutritious (high-sugar) foods was carried out, a similar bifurcation was obtained due to the entry of absolute versus ratio of commercial to public television hours into the regression equation. In the first analysis which utilized the absolute number of viewing hours among the predictor variable set, parents were found to

Table 5

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Regression Table for Purchase Influence Attempts for High-Sugar Foods

PIAJunk				
	SS	MS	Regression Weight ***	F Total
PATot	600.71	600.71	.27951	6.10192
	7088.15 *	98.45 *		
SES	948.33	474.16	-.22056	3.662 **
	6740.54 *	94.94 *		
Sex	1306.80	435.60	-.21712	3.932 **
	6382.07 *	91.17 *		
JunkCal	1627.47	406.87	-.21012	3.650 **
	6061.40 *	87.85 *		
KAtTot	1834.65	366.93	.17052	2.407 **
	5854.21 *	86.09 *		

* Residual

** Without replacement

*** $PIAJunk = 32.21667 + PATot(.38598) + SES(-2.56828) + Sex(-4.37293) + JunkCal(-.014779) + KAtTot(.74361)$

PIAJunk				
	SS	MS	Regression Weight ***	F Total
PATot	600.71	600.71	.27951	6.10192
	7088.15 *	98.45 *		
RPubK	1008.27	504.14	.23138	4.331 **
	6680.59 *	94.09 *		
SES	1450.62	483.54	-.25038	4.964 **
	6238.25 *	89.12 *		
JunkCal	1792.64	448.16	-.21716	4.003 **
	5896.22 *	85.45 *		
Sex	2083.08	416.62	-.19651	3.523 **
	5605.79 *	82.44 *		

* Residual

** Without replacement

*** $PIAJunk = 38.24367 + PATot(.34794) + RPubK(18.21838) + SES(-3.17538) + JunkCal(-.01443) + Sex(-4.16104)$

be more likely to buy low-nutrition foods for their children following a request when: (1) they held a positive attitude toward commercials they viewed on television; (2) their child weighed relatively more; (3) their child consumed more high-sugar calories in the home; and (4) their child held a positive total attitude toward commercials he saw on television. The details of the analysis are presented in Table 6.

The second analysis, which utilized the ratio of commercial to public television viewing among the predictor variables, indicated that parents were more likely to buy their child requested high-sugar food stuffs when: (1) they watched proportionately less public television; (2) they held a positive attitude toward commercials they viewed on television; (3) their child weighed relatively more; (4) their child watched proportionately less public television; (5) their child consumed more high-sugar calories in the home; (6) they were of relatively lower socioeconomic status; and (7) their child was female. The details of the analysis are presented in Table 6.

All regression analyses concerning the purchase of nutritious foods following a child's request were non-significant.

In an effort to better understand the above analyses, the initial variables were collapsed across categories to yield four new criterion variables: overall rate of purchase influence attempts; overall success of PIAs; requests and success of PIAs for nutritious foods; and requests and success of PIAs for non-nutritious foods. The analysis of overall purchase influence attempts was carried out utilizing two slightly different sets of

Table 6

Regression Table for Parental Yielding following a High-sugar Purchase Influence Attempt

BuyJunk				
	SS	MS	Regression Weight ***	F Total
PATot	597.05	597.05	.27231	5.76656
	7454.59 *	103.54 *		
Weight	1131.38	565.69	-.25844	5.482 **
	6920.25 *	97.47 *		
JunkCal	1468.86	489.62	-.20591	3.589 **
	6582.77 *	94.04 *		
KATot	1762.96	440.74	.19679	3.227 **
	6288.68 *	91.14 *		

* Residual

** Without replacement

*** $BuyJunk = 45.52374 + PATot(.55668) + Weight(-.52736) + JunkCal(-.01544) + KATot(.87814)$

BuyJunk				
	SS	MS	Regression Weight ***	F Total
RPubP	672.69	672.69	.28905	6.56381
	7378.94 *	102.49 *		
PATot	1171.00	585.50	.24967	5.142 **
	6880.63 *	96.91 *		
Weight	1732.80	577.60	-.26508	6.224 **
	6318.84 *	90.27 *		
RPubK	2092.44	523.11	.23192	4.164 **
	5959.20 *	86.37 *		
JunkCal	2324.57	464.91	-.17676	2.756 **
	5727.07 *	84.22 *		
SES	2627.18	437.86	-.21089	3.738 **
	5424.46 *	80.96 *		
Sex	2810.08	401.44	-.15314	2.303 **
	5241.56 *	79.42 *		

* Residual

** Without replacement

*** $BuyJunk = 64.34159 + RPubP(28.51922) + PATot(.41979) + Weight(-.59429) + RPubK(20.91874) + JunkCal(-.01548) + SES(-2.30137) + Sex(-3.31833)$

predictor variables. The first analysis utilized a summation score of a child's total attitude toward commercials and the absolute number of high-sugar calories consumed by the child and recorded on the three-day food record as predictor variables. The second analysis looked only at a single score assessing a child's attitude toward commercials and a count of the frequency with which high-sugar foods were consumed by the child and entered on the three-day food record as predictor variables. Other predictor variables were identical across the two analyses.

The first analysis indicated that children made more PIAs in general when: (1) they held a positive total attitude toward advertising they viewed on television; (2) they reported that their parents did not talk to them about commercials they saw while (3) their parents reported talking to them relatively frequently about advertising; (4) their family was of relatively lower socio-economic status; and (5) they weighed more. The details of the analysis are presented in Table 7.

The second analysis indicated that children make more PIAs in general when: (1) their family was of lower socio-economic status; (2) they reported that their parents did not talk to them about commercials while (3) their parents reported talking to them relatively frequently about advertising; (4) they ate more high-sugar food stuffs at home; and (5) they held a positive attitude toward advertising. The details of the analysis are presented in Table 7.

Analysis of the overall success of PIAs and of the rate and

Table 7
Regression Table of all Purchase Influence Attempts

PIA				
	SS	MS	Regression Weight ***	F Total
KAtTot	3199.76	3199.76	.28254	6.24624
	36883.39 *	512.27 *		
KTalk	4778.02	2389.01	.19957	3.174 **
	35305.13 *	497.26 *		
PFreq	6572.95	2190.98	-.21539	3.749 **
	33510.20 *	478.72 *		
SES	7644.48	1911.12	-.16928	2.279 **
	32438.67 *	470.13 *		
Weight	8729.45	1745.89	-.16810	2.353 **
	31353.70 *	461.08 *		

* Residual

** Without replacement

*** $PIA = 139.4354 + KAtTot(2.5817) + KTalk(11.21982) + PFreq(-2.74919) + SES(-3.99732) + Weight(-.71476)$

PIA				
	SS	MS	Regression Weight ***	F Total
SES	2547.89	2547.89	-.25212	4.88736
	37535.26 *	521.32 *		
KTalk	4022.41	2011.20	.19399	2.903 **
	36060.74 *	507.90 *		
PFreq	5614.44	1871.48	-.20281	3.233 **
	34468.71 *	492.41 *		
JunkNo	6963.27	1740.82	-.18442	2.810 **
	33119.88 *	480.00 *		
KAtTAd	8327.18	1665.44	.19170	2.921 **
	31755.97 *	467.00 *		

* Residual

** Without replacement

*** $PIA = 125.41 + SES(-4.01309) + KTalk(14.11725) + PFreq(-3.04664) + JunkNo(-.82971) + KAtTAd(2.96541)$

success of PIAs for nutritious foods were non-significant.

The analyses of rate and success of PIAs for non-nutritious (high-sugar) foods was again bifurcated due to the use of absolute versus ratio of public to commercial television hours as predictor variables. The first analysis, utilizing absolute number of viewing hours among the predictor variable set, indicated that children requested and parents bought more high-sugar foods following a request when: (1) parents held a more positive attitude toward commercials they viewed on television; (2) the child ate more high-sugar calories at home; (3) the family was of relatively lower socio-economic status; (4) the child was female; (5) the child weighed relatively more; and (6) the child held a more positive total attitude toward commercials. The details of the analysis are presented in Table 8.

When the ratio of commercial to public television viewing was examined among the set of predictor variables, the analysis revealed that children requested and parents bought more high-sugar foods when: (1) parents held a more positive attitude toward commercials they viewed on television; (2) the child watched a lower proportion of public television; (3) the family was of lower socio-economic status; (4) the child ate more high-sugar calories in the home; (5) the child weighed relatively more; (6) the child was female; and (7) the child held a more positive attitude toward commercials. The details of the analysis are presented in Table 8.

To provide another view of the problem, the total calories

Table 8

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Regression Table of High-sugar Purchase Influence Attempts and Subsequent Buying

Junk				
	SS	MS	Regression Weight *	F Total
PATot	2395.51	2395.51	.30185	7.21763
	23896.61 *	331.90 *		
JunkCal	3453.20	1726.60	-.20150	3.288 **
	22838.93 *	321.68 *		
SES	4825.29	1608.43	-.24263	4.474 **
	21466.83 *	306.67 *		
Sex	5890.26	1472.57	-.20243	3.602 **
	20401.86 *	295.68 *		
Weight	6549.07	1309.81	-.15999	2.269 **
	19743.05 *	290.34 *		
KAtTot	7346.21	1224.37	.18253	2.819 **
	18945.91 *	282.77 *		

* Residual

** Without replacement

*** $Junk = 92.96181 + PATot(.86614) + JunkCal(-.03219) + SES(-4.35982) + Sex(-8.1811) + Weight(-.633) + KAtTot(1.47192)$

Junk				
	SS	MS	Regression Weight ***	F Total
PATot	2395.51	2395.51	.30185	7.21763
	23896.61 *	331.90 *		
RPubK	4296.45	2148.23	.27023	6.136 **
	21995.67 *	309.80 *		
SES	5471.64	1823.88	-.22069	3.951 **
	20820.48 *	297.44 *		
JunkCal	7222.42	1805.61	-.26570	6.335 **
	19069.70 *	276.37 *		
Weight	8072.77	1614.55	-.18251	3.174 **
	18219.35 *	267.93 *		
Sex	9017.49	1502.91	-.19256	3.664 **
	17274.63 *	257.83 *		
KAtTot	9613.25	1373.32	.15829	2.358 **
	16678.87 *	252.71 *		

* Residual

** Without replacement

*** $Junk = 104.4452 + PATot(.7164) + RPubK(41.12382) + SES(-5.10878) + JunkCal(-.03333) + Weight(-.75841) + Sex(-7.11996) + KAtTot(1.27643)$

consumed by the child on the BET was utilized as a criterion variable. The results revealed that children consumed relatively more calories on the BET when: (1) they were male; and (2) they were relatively taller. The details of the analysis are presented in Table 9.

The three-day food record was incorporated into the study in an attempt to obtain a sample of a child's diet in the home. The results obtained suggest that, by and large, the children in this study consumed an adequate diet during this three day period. The obtained means and standard deviations are given in Appendix R. An examination of the data indicated a mean of nearly 100% or greater for all variables on which the RDA was calculated. The variables which measured the adequacy of the child's diet were therefore deemed to be of inadequate discriminatory power and were omitted from all subsequent analyses. Used in their place were two other variables obtained from data on the three-day food record: one measuring the frequency with which children consumed high-sugar foods during the three day period and the second measuring the number of calories contributed by these foods during the same three day period.

When the absolute number of high-sugar foods is utilized as a criterion variable, it is found that children consumed more high-sugar foods in the home when: (1) parents reported buying more high-sugar foods following their child's request; (2) parents held a more negative attitude toward commercials they viewed on television; (3) parents reported that their children requested more high-sugar foods; and (4) children

Table 9
Regression Table of Total Calories Consumed on the BET

TotalC				
	SS	MS	Regression Weight ***	F Total
Sex	159706.30	159706.30	-.23434	4.18348
	2748636.14 *	38175.50 *		
Height	261507.78	130753.89	.18733	2.731 **
	2646834.66 *	37279.36 *		

* Residual

** Without replacement

*** $TotalC = -370.771 + Sex(-92.60966) + Height(17.46336)$

reported they held a more negative attitude toward commercials they viewed on television. The details of this analysis are presented in Table 10.

The analysis which utilized the caloric contribution of high-sugar foods as a criterion variable revealed that children consumed a greater number of high-sugar calories in the home when: (1) their parents reported buying more high-sugar foods following their child's request; (2) they came from relatively higher socio-economic status families; and (3) they viewed more hours of television in general. The details of the analysis are presented in Table 11.

To assess the degree of relatedness of the variables, a Pearson product-moment correlational analysis was performed. Due to the fact that each variable enters into many separate correlational relationships, the probability of Type I error is compounded. Therefore, only those variables which correlate at $|\cdot35|$ or greater, accounting for approximately 10% of the variance and having a tabular significance equal to or less than .001, are listed in Table 12. Those variables which correlated at this level appear to have a high degree of communality, making it somewhat difficult to discuss each variable's unique contribution. However, as can be noted in Table 12, the dependent variables correlated only with other dependent variables. Similarly, independent variables also only correlated with each other. The complete correlation matrix for all 35 regression variables can be found in Appendix S.

Several of the variables used in the analyses were created.

Table 10

Regression Table of the Number of High-sugar Foods Eaten by the Child in the Home

JunkNo				
	SS	MS	Regression Weight ***	F Total
BuyJunk	220.07	220.07	-.30383	7.32245
	2163.94 *	30.05 *		
PATot	365.23	182.62	.25645	5.105 **
	2018.78 *	28.43 *		
PIAJunk	426.16	142.05	-.21750	2.178 **
	1957.86 *	27.97 *		
KAtTot	501.25	125.31	.18333	2.752 **
	1882.76 *	27.29 *		

* Residual

** Without replacement

*** $JunkNo = 10.4716 + BuyJunk(-.12598) + PATot(.3272) + PIAJunk(-.14419) + KAtTot(.44516)$

Table 11

Regression Table of the Number of High-sugar Calories Eaten by the Child in the Home

JunkCal				
	SS	MS	Regression Weight ***	F Total
BuyJunk	105186.20	105186.20	-.24185	4.47291
	1693170.52 *	23516.26 *		
SES	199880.39	99940.20	-.23353	4.206 **
	1598476.32 *	22513.75 *		
LogTVK	255828.93	85276.31	.19482	2.539 **
	1542527.79 *	22036.11 *		

* Residual

** Without replacement

*** $JunkCal = 453.5341 + BuyJunk(-3.73616) + SES(-46.14436) + LogTVK(3.04236)$

Table 12

Regression Variables that correlate greater than $|.35|$

Dependent Variables		
BETCaI with	BETG with	PET with
BETG .88	PET .47	TotalC -.38
PET .55	TotalC -.50	
TotalC -.55		
PIANut with	PIAJunk with	BuyNut with
PIAJunk .36	BuyNut .39	PIA .78
BuyNut .81	BuyJunk .67	Buy .94
PIA .91	PIA .71	Nut .98
Buy .77	Buy .56	Junk .37
Nut .93	Nut .40	
Junk .33	Junk .91	
BuyJunk with	PIA with	Buy with
PIA .50	Buy .82	Nut .91
Buy .60	Nut .88	Junk .63
Junk .92	Junk .65	
Nut with		
Junk .37		
Independent Variables		
LogTVP with	LogTVK with	LogTVC with
LogTVK .62	LogTVC .49	RatC .57
LogTVC .45	SES .39	
SES .40		
RPubP with	PATot with	PaTalk with
RPubK .39	PAKTot .53	PFreq .81
RPubC .54		
RatC .48		
KATot with	JunkCaI with	Weight with
KATAd .82	JunkNo .49	Height .68

by summing across related items. The first of these variables was parental attitude toward commercials they viewed on television. Nine individual items, listed in Appendix H, were summed to yield a single total score variable. The correlations are presented in Table 13.

The second variable, parental attitude toward advertising directed at children, was the sum of two items which correlated with each other at $r=.49$, $df=73$, $p<.001$. These two items were: (1) parental attitude toward children's advertising in general; and (2) parental attitude should a reduction in children's advertising incur a similar reduction in children's programming. They correlated with the total score variable: at $r=.89$, $df=73$, $p<.001$ and $r=.87$, $df=73$, $p<.001$, respectively.

The third variable, children's attitude toward advertising, was also comprised of two items. These items were a child's attitude toward advertising and child's affective response to advertising versus programming. The correlations between these two items and the total score variable were $r=.82$, $df=73$, $p<.001$ and $r=.82$, $df=73$, $p<.001$, respectively. The correlation between the two items comprising the total score variable, however, was only $r=.30$, $df=73$, $p<.004$, which suggested that summing these two items was not an appropriate manipulation. An examination of the data suggested that the question which required children to discriminate between advertising and programming was too difficult a distinction for some children to achieve. Therefore, in some regression equations, a child's attitude toward advertising was utilized in lieu to the total score

A child's consumption of high-sugar foods on the three-day food record was assessed in two ways. It was examined both as a caloric function and as a frequency function. The two variables correlated with each other at $r=.49$, $df=73$, $p<.001$. Each was utilized as both a criterion and a predictor variable in separate analyses.

The accuracy of the television logs maintained by parents was strongly corroborated by parental self-report of television viewing hours. For parents, the correlation between the television log data and the self-report data was $r=.84$, $df=73$, $p<.001$. The correlation for children's viewing was $r=.73$, $df=73$, $p<.001$.

Several other items were measured but not utilized directly in any of the regression analyses. Those items which correlated greater than .35 with any of the regression variables are presented in Appendix T. Similar to the results achieved when the regression variables were correlated with each other, the items which correlated at this level had a high degree of communality.

Chapter IV

Discussion

The results suggest that a number of variables are related to children's purchase influence attempts, food preferences and food consumption. Of the predictor variables utilized, four were found to significantly increase the proportion of nutritious calories consumed on the BET. These variables comprise a mixture of behaviors and attitudes prevalent among these parents and children. Of greatest magnitude was the child's actual eating habits in the home. Children who consumed fewer low nutrition foods at home also ate a higher proportion of pro-nutrition foods in the free choice situation provided by the BET.

A child's attitude was also found to be an important predictive variable. Children who held a negative attitude toward commercials consumed a higher proportion of nutritious calories on the BET. Atkin (Note 1) and Rossiter and Robertson (Note 4) have suggested that more favorable attitudes towards ads are typically held by individuals who view more television in general. Although television viewing hours did not emerge as a significant predictor variable, a strong correlational relationship between parental attitude toward advertising and viewing hours emerged. Parents who held a negative attitude towards ads reported less total television viewing time both by their children and themselves.

Atkin (Note 6), Feldman, et al. (1977) and Ward, et al. (1977, Note 5) all suggested that parental attitudes were a

valuable indicator of goals parents set for their children's consumerization. Parents, in this study, whose children consumed a higher proportion of nutritious calories on the BET, reported that they spent time discussing the salient negative aspects of commercials with their children. Surprisingly, however, these children did not demonstrate a superior understanding of why commercials are shown on television. In fact, they seemed to have less understanding than their peers, who consumed a lower proportion of nutritious calories. A possible explanation of this seemingly contradictory finding is suggested in an examination of the data. While attempting to ascertain a child's level of understanding of why commercials are shown on television, the procedures used to elicit the child's responses were found to be somewhat ambiguous. These children tended to give statements of affect rather than their understanding of why commercials are shown. Ward, et al. (Note 5) found that heavy television viewers did not possess a greater understanding regarding the intent of commercials. The equivocal results obtained in the current investigation suggest that an assessment of a child's level of understanding regarding the intent of commercials, at least at the kindergarten level, is likely to be unreliable.

The prediction of purchase influence attempts and subsequent buying was much more successful than the attempt to predict actual food preference and consumption with the laboratory measures of the BET and PET. In total, five such criterion variables were successfully predicted. These were purchase influence attempts

for nutritious foods (PIANut), purchase influence attempts for low-nutrition foods (PIAJunk), total purchase influence attempts (PIA), buying of low-nutrition following a purchase influence attempt (BuyJunk) and the sum of purchase influence attempts for low-nutrition foods and the subsequent buying of these foods (Junk).

When the predictor variables that enter into these regression equations were examined, a consistent pattern effect was noted. With only a few exceptions, two subsets of predictor variables emerged. One subset consistently entered into equations that concerned the criterion variables involved in the request or purchase of non-nutritive foods (PIAJunk, BuyJunk and Junk). The other predictor variable subset, though less consistent, entered into those equations which predict the criterion variables of purchase influence attempts in general (PIA) and purchase influence attempts for nutritious foods (PIANut).

The predictor variables can be further differentiated as to the exclusivity or consistency with which they enter into the various prediction equations. A predictor variable is considered to be exclusive when it enters into only one of the criterion variable groupings previously discussed. Conversely, a predictor variable is considered to be non-exclusive when it enters into both criterion variable groupings of (1) the request or purchase of non-nutritive foods and (2) general or nutritious purchase influence attempts.

Concurrently, the predictor variables may also be differentiated in terms of the exclusivity with which they contribute

to the two criterion variable groupings. As was previously described, the bifurcated analyses yielded two equations for each of the criterion variables PIAJunk, BuyJunk and Junk because of the utilization of slightly different sets of predictor variables. A predictor variable is considered to be consistent when it enters into each of the prediction equations within a criterion variable grouping in at least one of its bifurcated forms. Conversely, a predictor variable is considered not to be consistent when it fails to enter into each of the prediction equations subsumed under a criterion variable grouping. Figure 1 incorporates a listing of all predictor variables entering into the various equations delineated as to their exclusivity and consistency.

The following set of eight predictor variables were found to enter, at differing magnitudes, into equations predicting the request for or purchase of low-nutritive foods. Children requested and/or parents bought more low-nutritive food stuffs when:

Parents held a more positive attitude toward the commercials they viewed on television.

The child was female.

The child consumed more high-sugar calories in the home.

The child watched a relatively lower proportion of public television.

The parent watched a relatively lower proportion of public television.

The family was of relatively lower socio-economic status.

The child held a more positive attitude toward commercials.

The child weighed relatively more.

The following four predictor variables were found to be both exclusive and consistent in the prediction of requests and subsequent purchase of high-sugar foods:

FIGURE 1

Increased Non-nutritive Requests and Purchases

	Consistent	Not Consistent
Exclusive	Positive parental attitude toward advertising Female child More high-sugar calorie consumption in the home Lower proportion of public television viewing by the child	Lower proportion of public television viewing by the parent
Non-Exclusive	Lower socio-economic status Positive attitude toward advertising held by the child	Child weighed proportionately more

Increased Nutritious and General Purchase Influence Attempts

	Consistent	Not Consistent
Exclusive	Children report their parents do not talk with them about advertising	Parents report they do talk with their children about advertising Higher proportion of public television covieving Parents report frequent conversations with their child about advertising Child eats more high-sugar foods in the home
Non-Exclusive	Child weighed proportionately more Positive attitude toward advertising held by the child	Lower socio-economic status

The exclusivity and consistency of predictor variables entering into criterion variable groupings of (1) Non-nutritive requests and purchases and (2) Nutritious and general purchase influence attempts.

Parents held a more positive total attitude toward commercials they viewed on television.

The child was female.

The child consumed relatively more high-sugar calories in the home.

The child watched a relatively lower proportion of public television.

The variable which assessed the proportion of parental viewing of public television made a significant contribution only to the prediction of subsequent buying of high-sugar foods following a child's request (BuyJunk). This predictor variable is therefore considered to be exclusive but not consistent. The remaining variables were found to be non-exclusive, by definition making contributions to both criterion variables assessing the request for and subsequent purchase of non-nutritive foods as well as criterion variables measuring nutritious food and general purchase influence attempts. The socio-economic status of the family and the child's attitude toward advertising were found to be consistent across the three criterion variables PIAJunk, BuyJunk and Junk. They were not, however, found to be exclusive to these three criterion variables. The remaining predictor variable, a child's weight, was found to be neither consistent nor exclusive.

An overlapping set of eight predictor variables were found to enter into the criterion variable grouping which included equations predicting purchase influence attempts in general as well as purchase influence attempts for nutritious foods. Only the predictor variable which measured a child's report of parent-child conversations about commercials was found to be both exclusive and consistent across these two criterion variables. Four other varia-

bles were found to be exclusive but not consistent across the criterion variables of purchase influence attempts in general (PIA) and purchase influence attempts for nutritious foods (PIANut). Parental report of parent-child conversations about commercials and the proportion of parent-child co-viewing of public television contributed significantly to the prediction of purchase influence attempts for nutritious foods (PIANut). The frequency with which parents report the occurrence of conversations with their child about commercials and the number of high-sugar foods consumed by the child in the home contributed significantly to the prediction of the frequency of purchase influence attempts in general (PIA). A child's weight and attitude toward advertising was found to be consistent across both criterion variables assessing nutritious food and general purchase influence attempts. They were not, however, exclusive to these variables. The families' socio-economic status was found to be neither consistent nor exclusive.

By collapsing the data in this way, it becomes possible to examine, in more general terms, the relative contribution of the various predictor variables. Both parental attitude and children's attitude were found to be important predictor variables. In every instance, a child's attitude was found to affect requests and purchases for both nutritious and non-nutritious foods. A child who held a positive attitude toward commercials was both more likely to make requests for all types of foods and to have parents purchase those foods following a request. Parental attitude, however, affected only those criterion variables which

assessed non-nutritious food requests and purchases. Parents who held a positive attitude toward commercials were more likely to have children who requested more non-nutritious foods and were more likely to buy these foods for their child following a request.

Several demographic variables were also found to influence food requests and purchases. A child's weight was found to enter into all significant prediction equations except one, the frequency with which a child requests high-sugar foods. Its absence from this prediction equation suggests some interesting possible interpretations. It is possible that these children are not, necessarily, requesting more high-sugar foods than their lower weight peers. They instead seem to be making more requests in general but have parents who purchase more high-sugar foods for them. The socio-economic status of families was similarly found to enter into all significant prediction equations except one. In this case, socio-economic status did not affect a child's requests for nutritious foods. Sharaga (1974) has suggested that there is a strong positive correlation between socio-economic status and dietary adequacy. Other research (National Science Foundation, 1978) has suggested a strong negative correlation between socio-economic status and parental yielding to a child's purchase influence attempt. The results of the present investigation might argue that regardless of socio-economic status, children request nutritious foods at similar frequencies. However, children from lower socio-economic status families tend to make more re-

quests for high-sugar foods and have parents who are more likely to yield to this specific class of requests. The last demographic variable, a child's sex, made its contribution only to those equations which predicted the request for and subsequent purchase of high-sugar foods. A female child was not only more likely to request high-sugar foods, but also to have those foods purchased following her request. As a matter of speculation, parents, in our sample, may have been more likely to indulge their female children.

The relative proportion of public television viewed by the child has a significant effect across criterion variables concerned with the request or purchase of high-sugar foods. Children who view a relatively lower proportion of public television tend to make increased requests for and are ultimately more successful in influencing the purchase of high-sugar foods. The relative proportion of public television viewed by the parent makes a significant contribution to only one criterion variable, the frequency with which parents purchase high-sugar foods following a child's request. Parents who watched a lower proportion of public television were more likely to buy high-sugar foods following their child's request. It is likely that these two predictor variables are, to some extent, interrelated. Parents who watch public television are probably more likely to encourage public television viewing by their children. In this investigation, however, commercial television viewing by parents and

children had a strong correlation with socio-economic status. Studies by Robinson(1971), Sharaga (1974) and Ward, et al., (1971) have revealed a similar relationship between socio-economic status and television viewing hours. Rossiter and Robertson (1975) however, have suggested that discrepancies between reported viewing hours and actual viewing hours often occurred, with higher socio-economic individuals being more likely to under-estimate viewing hours on a self-report instrument. In the present study both a self-report measure of viewing hours and a behavioral recording of viewing hours were utilized. These two measures were highly correlated and higher socio-economic parents reported fewer viewing hours, in general, on both of these measures. Additionally, on the television log, higher socio-economic status parents reported less commercial television viewing by both their children and themselves. Either the television log can be considered to be as reactive as the self-report measure or Rossiter and Robertson (1975) may have over-estimated the reactivity of self-report television viewing data. It should be noted, however, that mean number of television hours by families in the present study was substantially less than that typically cited by other researchers (Pipes, 1977; National Science Foundation, 1978). This may be due to atypical viewing patterns in the relatively small sample utilized or to a more generalized under-reporting of television viewing, regardless of social class. The obtained relationship between commercial television hours and

socio-economic status, however, served to increase the ratio of public to commercial television viewed by higher socio-economic status families. This confounding makes it somewhat difficult to determine the actual contribution of public television viewing, alone, to the prediction of non-nutritive requests and purchases.

The proportion of public television co-viewed by parents and children made a significant contribution only to the frequency with which children made requests for nutritious foods. The variable of co-viewing was not significantly correlated with socio-economic status. Children requested more nutritious foods when there was a higher proportion of public television co-viewing. Rossiter and Robertson (1975) have suggested that the reported amount of co-viewing in a survey situation is also subject to demand characteristics which result in over-estimation of co-viewing hours. In the present study, however, this relationship was obtained from parental reports on the supposedly less reactive television log measure. This finding suggests that public television viewing, at least in the company of a parent, has a positive influence on children's nutritional habits.

Not surprisingly, children who requested high-sugar foods at greater frequencies and experienced greater success in influencing parental purchases of these foods were also found to consume a higher number of high-sugar calories in the home. This finding lends validating support to studies which utilize, as dependent variables, a child's level of purchase influence attempts and a parent's willingness to purchase these foods following a request

(Atkin, Note 6; Galst & White, 1974; Ward & Wackman, 1972). The most obvious implication of this finding is that the high-sugar foods purchased following a child's request are being consumed, at least in part, by the child in the home. Consistent with reports by the National Science Foundation (1978), an increased level of parental yielding to high-sugar food requests from their child was also related to a positive parental attitude toward television advertising and lower socio-economic status.

Atkin, et al., (Note 2), Dussere (Note 3) and Sharaga (1974) have all suggested that heavy television viewers are more likely to eat highly sugared products at a greater frequency. Confirming correlational evidence was obtained in the present study which supported this finding. Children who watched relatively more commercial television both requested and had high-sugar foods purchased for them more frequently than their peers who viewed fewer commercial television hours.

As previously discussed, a child's consumption of high-sugar foods was assessed both as the number of high-sugar calories consumed and as frequency count of the absolute number of high-sugar foods eaten in the home. Although there is a positive correlation between these two variables, an examination of the data suggests that utilizing the caloric function makes a more meaningful contribution because of its greater discriminatory power. The absolute number of high-sugar foods consumed by the child in the home made a significant contribution only to the prediction of the

rate of purchase influence attempts. Children made more purchase influence attempts in general when they consumed a greater number of high-sugar foods in the home. It is unclear why this variable contributed in this way and failed to reach significance in equations designed to assess requests for and purchases of high-sugar foods.

The final group of predictor variables which made significant contributions can be generally classified as parent-child interactions. The three predictor variables which achieved significance, contributed only to those prediction equations concerning nutritious and general purchase influence attempts. This combination of predictor variables is not easily interpretable. When children were found to make fewer purchase influence attempts both in general and for nutritious foods in specific, they also reported that their parents did talk to them about advertising. However, when children were found to make fewer purchase requests for nutritious foods, parental reports suggested that parents did not talk to their children concerning commercials. This seeming contradiction may be due to the exclusionary criteria utilized in determining whether parents discussed the salient negative aspects of commercials with their children. Both children and parents had to report that such discussion did, in fact, take place but parents were further required to give a valid example of the types of conversations which occurred. Many parents who reported discussing commercials with their child gave invalid examples, such as those promoting the advertiser's message, and were coded as not discussing

advertising with their children. On the other hand, children had only to report that discussion took place and were not required to give a valid example. This most likely accounts for the apparent discrepancy. When children were found to make fewer purchase requests in general, parents were coded as talking to their children about advertising, but only at relatively low frequencies. This is most likely due to one of or a combination of two factors. Parents who barrage their children with too frequent anti-commercial communications may enact a paradigm of overkill. Of course, it is also possible that parents who reported more frequent conversations may have over-responded to the implicit demands of the interview situation.

Previous research with the BET has consistently found effects due to sex (Lemnitzer, et al., Note 9), height and weight (Jeffrey, et al., 1980) on total calorie consumption. These effects were further substantiated by the current investigation which found that total caloric consumption on the BET increased when the child was male and when the child was of relatively greater height. Weight and height were highly correlated which may account for the absence of a child's weight in this equation.

The results obtained when the number of high-sugar calories consumed by the child in the home (JunkCal) was utilized as a criterion variable contained several interesting and potentially significant emergent properties which may warrant further investigation. The results indicate that children who consumed the highest number of high-sugar calories in the home were more successful in

influencing parental purchase of high-sugar foods, came from higher socio-economic status families and watched a relatively greater amount of television in general. These results are somewhat discrepant from previous findings, in this investigation, which indicated socio-economic status to be inversely related to requests and purchases of high-sugar foods. As previously noted, higher socio-economic status was also consistently related to fewer television viewing hours, in general. Therefore, it would seem that children at greatest risk of consuming a relatively higher proportion of high-sugar calories in the home would be those from higher socio-economic status families who deviate from the norm and indulge their children with more high-sugar foods and allow their child to watch more television in general.

The second variable obtained from the data on the three-day food record, the absolute number of high-sugar foods consumed by the child in the home, was also subjected to analysis as a criterion variable. Further confirmation of the lower ecological validity of this measure, as compared to the alternative measure of caloric function, seemed apparent in the results. It was found that children who consume high-sugar foods at a greater frequency both request high-sugar foods and have high-sugar foods purchased for them more frequently following these requests. Inexplicably, however, these parents and children both expressed negative total attitudes toward advertising. The most parsimonious explanation would suggest this to be an artifact of both design and method of analysis. Further research is indicated to deter-

mine the full implications of this finding.

The three-day food record, in this sample, did not live up to expectations because of its lack of discriminatory power in regard to RDA levels. It proved, none the less, to be a valid and valuable inclusion. A part of its contribution was motivational. The use of this instrument provided parents with a succinct and readily understandable summary of the adequacy of their child's diet. It may also have been a contributory factor to the exceptionally high levels of voluntary participation by parents in this study. Many unsolicited, favorable comments to this effect were received. Additionally, the two variables which were obtained from data reported on the three-day food record (JunkCal and JunkNo) had adequate discriminatory power and made a valuable contribution to the study, in general. Unlike the laboratory measures of the BET and the PET, the three-day food record assesses a child's actual consumption in the home which may have resulted in increased ecological validity. Further research with this instrument is certainly warranted.

In summary, many interesting trends emerged from the present investigation. It was possible by gathering information in the home and assessing parents and children's attitudes toward advertising to predict, with some success, a child's consumptive patterns on the laboratory instrument of the Behavioral Eating Test. Attitudes of both the parent and the child were exceedingly important to the prediction of purchase influence attempts by children and subsequent yielding to PIAs by parents, as well as the

child's consumptive patterns in the laboratory on the BET. This study suggests more attention needs to be given to the more specific variable of public television viewing rather than the more global variable of total television viewing hours. This study also helps to validate the implicit assumption, in other studies, that a greater number of high-sugar PIAs by children and higher yielding to these high-sugar PIAs by parents does, in fact, lead to an increase in the number of high-sugar foods consumed by the child in the home. Finally, this study suggests a unique subset of children who are most likely to consume a greater number of high-sugar calories in the home. The children identified came from higher socio-economic status families, watched a greater amount of television in general and were more successful at influencing parental purchase of high-sugar foods. The inclusion of the three-day food record in this study was instrumental in helping to collect data of this nature and its utilization in other studies is strongly encouraged.

Should a similar study of this nature be attempted in the future, some modifications in the methodology are suggested. Greater selectivity in the utilization of variables should be exercised and more attention paid to the orthogonality of the variables ultimately included. Similar to Goldberg, Gorn and Gibson (1978), children in this study were able to discriminate healthy from unhealthy foods with a high degree of accuracy. This ability did not, however, contribute sig-

nificantly to the prediction of a child's free choice preferences on either the BE or the PET. Similarly, parental attitudes toward children's advertising seemed, in this study, to be superfluous and added no predictive significance beyond that contributed by the more general measure of parental attitude toward commercials.

Finally, this study should be considered a preliminary investigation. The complexity of the design and the inordinant number of variables assessed greatly inflate the probability of unintentional bias in both data gathering and analysis. Without additional confirming research, the results of this investigation should be generalized to other populations only with caution.

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A P P E N D I C E S

Parent Interview



University of Montana

Missoula, Montana 59812

Dear Parent,

Over the last few years, District 1 parents and children have been participating in a number of related research projects on television and health carried out by Dr. Balfour Jeffrey and a few Graduate students of the University of Montana's Psychology Department. The past response of parents to our research has been overwhelmingly positive and we hope that you, too, will feel this way. Beginning in mid January, we will be conducting an investigation on the effects of television programming and family viewing on the eating habits of kindergarten age children. This is an important area of concern currently among parents, educators and health professionals. We would like to ask for your help in carrying out this research.

We have discussed this study with your principal, Glenn Hoffman, and your kindergarten teachers, Marilou Baughman, Barbara Bevington and Sue Dickey, and they have approved and endorsed our project. We will need to meet once with your child and he/she will be given the opportunity to taste some of the following foods and beverages: cheese, carrots, Frito's, orange juice, chocolate chip cookies, M&M's, Kool Aid, apples, milk, soda, graham crackers and some breakfast cereal. Your child may taste or decline to taste any of the foods. We will also be asking your child some questions about the kinds of foods they like to eat and the kinds of things they watch on television. The entire procedure will take about 25 minutes and will be done at your child's school. It has been our experience that children really enjoy this. Children will be escorted to and from class by a college student.

Because you know your child best, we also need to enlist your aid as an essential part in the gathering of information. Specifically, we would need to meet with you twice and would request that you answer some questions about television viewed by your family and your grocery shopping patterns. Additionally, we will be asking you to monitor the programs your child watches on television for a week and keep a record of the foods your child eats for a three day period. In return for your participation, we will furnish you with the results of the computer analysis of your child's diet and a personalized nutritional summary. This will give you a breakdown of the calories and eight nutrients supplied by the diet as compared to the Recommended Daily Allowance. All information gathered will be held in strict confidence and released only to you. In addition, a \$100 contribution will be made to your PTA in order to thank you and all the other parents and children who have agreed to participate in this research.



We sincerely hope that you will grant us the permission to speak with you and your child further. You can indicate your approval by filling out the enclosed form and returning it in the enclosed envelope. We will provide you with information concerning the results of our study as that information becomes available. If you have any questions, please feel free to call us at 243-5664 or 243-4521. Thank you in advance for your cooperation.

Sincerely,

Dr. Balfour Jeffrey,
Ph.D., Associate Professor

Susan J. Beattie,
Psychology Graduate Student



University of Montana
Missoula, Montana 59812

Date: _____

Child's Name: _____

School: _____

Grade: Kindergarten

Age: _____

Date of Birth: _____

Teacher: _____

Does your child have any food allergies? If so, please indicate allergenic foods:

Telephone number: _____

Best time to call: _____

I grant my permission for my child to participate in a study beginning in January 1981 involving the assessment of television and family influence on children's eating behavior.

Yes _____ No _____
(check one)

Parent Signature: _____



Appendix B

Parental information and socio-economic designation

Name:Date:Phone Number:Follow up phone call dates:

How many people live in your household?

Number of adults? _____

Number of children? _____ Ages? _____

Are you employed? Yes _____ No _____

If yes, what is your occupation? _____

Is your spouse employed? Yes _____ No _____

If yes, what is your spouse's occupation? _____

What is the last year you completed in school? _____

What is the last year your spouse completed in school? _____

Appendix C

Hollingshead's Two-Factor Index of Social Position

EDUCATION	OCCUPATIONS						
	Higher Ex. Large Prop. Major Prof. 1	Managers Med. Prop. Lesser Prof. 2	Admin. Sm Bus. Semi. Prof. 3	Clerical Sales Tech. Lit, Bus. 4	Skilled Manual 5	Machine Op. and Semi- Skilled Man. 6	Unskilled and Domestic 7
GRADUATE DEGREE 1	////// 1			//////	//////		
COMPLETE DEGREE 2	////// 1	2	//////	//////	//////		
PARTIAL COLLEGE 3			//////	//////			//////
COMPLETE HIGH SCHOOL 4		3	//////				//////
10TH AND 11TH GRADES 5			//////	4		//////	//////
7TH, 8TH AND 9TH GRADES 6	//////	//////				//////	5
LESS THAN 7TH GRADE 7	//////	//////			//////	//////	//////

Appendix D
Television viewing patterns: Self report

- 1) Do you own a television set? Yes _____ No _____
If yes, how many sets do you own? _____
- 2) During the week (Monday through Friday), do you or your spouse watch TV in the morning?
Yes _____ For how many hours? _____
No _____
- 2A) During the week, does your child usually watch TV in the morning?
Yes _____ For how many hours? _____
No _____
- 3) During the week, do you or your spouse usually watch TV in the afternoon?
Yes _____ For how many hours? _____
No _____
- 3A) During the week, does your child usually watch TV in the afternoon?
Yes _____ For how many hours? _____
No _____
- 4) During the week, do you or your spouse usually watch TV at dinnertime?
Yes _____ For how many hours? _____
No _____
- 4A) During the week, does your child usually watch TV at dinnertime?
Yes _____ For how many hours? _____
No _____
- 5) During the week, do you or your spouse usually watch TV in the evening?
Yes _____ For how many hours? _____
No _____

5A) During the week, does your child usually watch TV in the evening?

Yes _____ For how many hours? _____
No _____

6) On Saturday's, do you or your spouse usually watch TV in the morning?

Yes _____ For how many hours? _____
No _____

6A) On Saturday's, does your child usually watch TV in the morning?

Yes _____ For how many hours? _____
NO _____

7) On Saturday's, do you or your spouse usually watch TV in the afternoon?

Yes _____ For how many hours? _____
No _____

7A) On Saturday's, does your child usually watch TV in the afternoons?

Yes _____ For how many hours? _____
No _____

8) On Saturday's, do you or your spouse usually watch TV at dinnertime?

Yes _____ For how many hours? _____
No _____

8A) On Saturday's, does your child usually watch TV at dinnertime?

Yes _____ For how many hours? _____
No _____

9) On Saturday's do you or your spouse usually watch TV in the evening?

Yes _____ For how many hours? _____
No _____

9A) On Saturday's, does your child usually watch TV in the evening?

Yes _____ For how many hours? _____
No _____

10) On Sunday's, do you or your spouse usually watch TV in the morning?

Yes _____ For how many hours? _____
No _____

10A) On Sunday's, does your child usually watch TV in the morning?

Yes _____ For how many hours? _____
No _____

11) On Sunday's, do you or your spouse usually watch TV in the afternoon?

Yes _____ For how many hours? _____
No _____

11A) On Sunday's, does your child usually watch TV in the afternoon?

Yes _____ For how many hours? _____
No _____

12) On Sunday's, do you or your spouse usually watch TV at dinnertime?

Yes _____ For how many hours? _____
No _____

12A) On Sunday's, does your child usually watch TV at dinnertime?

Yes _____ For how many hours? _____
No _____

13) On Sunday's, do you or your spouse usually watch TV in the evening?

Yes _____ For how many hours? _____
No _____

13A) On Sunday's, does your child usually watch TV in the evening?

Yes _____ For how many hours? _____
No _____

Appendix E

Station	Commercial	Public	Showtime	Other Cable	Who is Watching?			
					Mother	Father	Other Child	Other Adult
	Missoula 8, 13 Cable 2,3,4,5, 6,10	Cable 11	Cable 7, 21	Cable 8,9,12,13				
Time								
6	00							
	30							
7	00							
	30							
8	00							
	30							
9	00							
	30							
10	00							
	30							
11	00							
	30							
12	00							
	30							
1 PM	00							
	30							
2	00							
	30							
3	00							
	30							
4	00							
	30							
5	00							
	30							
6	00							
	30							
7	00							
	30							
8	00							
	30							
9	00							
	30							
10	00							
	30							
11	00							
	30							
12mid night	00							
	30							
1 AM	00							
	30							
2	00							
	30							
3	00							
	30							
4	00							
	30							
5	00							
	30							

Appendix F

FOOD RECORD

NAME _____ AGE _____ SEX _____
 DAY OF WEEK _____ DATE _____ VITAMIN SUPPLEMENT _____

Please list all foods and liquids eaten:

#	FOOD & LIQUID	BRAND NAME	COOKING METHOD	AMOUNT EATEN
	<u>BREAKFAST</u>			
	<u>SNACK</u>			
	<u>LUNCH</u>			
	<u>SNACK</u>			
	<u>DINNER</u>			
	<u>SNACK</u>			

Sample Food Record

Name Michelle Age 6 Sex Female
 Day of Week Tuesday Date 1-20-81 Vitamin? Yes No

Please list ALL foods and liquids eaten:

Food and Liquid	Brand Name	Cooking Method	Amount Eaten
<u>BREAKFAST</u>			
white toast	Eddy's		1 piece
margarine	Parkay		1 teaspoon
Jang	Jang		4 ounces
<u>SNACK</u>			
Fruit Loops	Fruit Loops		3/4 cup
milk	Whole		1/2 cup
<u>LUNCH</u>			
cheese sandwich	Velveta Cheese	Grilled in shortening (crisco)	1 ounce cheese 1 slice white bread
Apple juice	Tree Top		1 1/2 teaspoon crisco
<u>SNACK</u>			
Tortilla chips	Clover Club		6 ounces
Hawaiian Punch	Kool Aid Brand		1 cup
<u>DINNER</u>			
Spaghetti with meatballs	Generic	Boil in salted water	3/4 c cooked
	Homemade	Simmered	3/4 c sauce
			2 1/2 oz meatballs
Tossed Salad		Homemade - milk & mayo	1 T dressing
Ranch Dressing			
Vanilla Pudding	Jello	Instant; whole milk	1/4 cup
<u>SNACK</u>			
Cookies	Orco		4 cookies
Cola	Pepsi		6 ounces

APPENDIX G

AGNET ANALYSIS

BAR GRAPH --- PERCENT OF RECOMMENDED DIETARY ALLOWANCES

	0%	20%	40%	60%	80%	100%	120%...	200%
CALORIES	66%						UNDER	UNDER
PROTEIN g	81%						UNDER	UN
CALCIUM mg	62%						UNDER	UNDER
IRON mg	31%						UNDER	UNDER
VITAMIN A iu	47%						UNDER	UNDER
THIAMINE mg	78%						UNDER	UN
RIBOFAVIN mg	86%						UNDER	
NIACIN mg	52%						UNDER	UNDER
VITAMIN C mg	213%						OVER	OVER

HEIGHT IS 48 INCHES BUILD IS SMALL

WEIGHS 42 POUNDS

YOU HAVE HAD SOME FOODS THAT PROMOTE TOOTH DECAY.

DO YOU WANT A LISTING OF THEM? Y OR N

Y

MORNING MEAL	FRUIT LOOPS
MID DAY MEAL	SUGAR
MID DAY SNACK	CHOC. CHIP COOKIE
EVENING SNACK	ICE CREAM

Appendix H

Parental attitudes toward commercials in general

Here are several statements about TV commercials. Please indicate how they affect you personally by choosing one of the following for each question below:

- 1 - Always
- 2 - Most of the time
- 3 - Sometimes
- 4 - Hardly ever
- 5 - Never

- _____ 1. I am likely to try out a new product I see advertised on TV.
- _____ 2. I find TV ads often fun and amusing to watch.
- _____ 3. I am influenced by ads to try a new food product.
- _____ 4. I feel TV ads are in poor taste and very annoying.
- _____ 5. I usually get some good ideas from TV ads for food products.
- _____ 6. I'd rather pay a small amount yearly if I would have TV without ads.
- _____ 7. I usually enjoy TV ads for food products.
- _____ 8. I feel TV ads are sometimes a welcome break.
- _____ 9. I feel there are too many ads on TV.

Appendix I

Parental attitude toward children's advertising

How do you feel about the commercials that are shown on children's television?

1	2	3	4	5	6	7
Strongly Positive	Positive	Slightly Positive	Don't care one way or another	Slightly Negative	Negative	Strongly Negative

If reducing the number of advertisements on children's television meant that the number of children's programs were also reduced, would you favor:

1	2	3	4	5	6	7
Large increase in children's advertising and programming.	Moderate increase in children's advertising and programming.	Slight increase in children's advertising and programming.	Keep things just the way they are.	Slight decrease in children's advertising and programming.	Moderate decrease in children's advertising and programming.	Large decrease in children's advertising and programming.

Appendix J

Purchase Influence Attempts

<input type="checkbox"/> Bread	<input type="checkbox"/> Potatoe chips/Corn chips
<input type="checkbox"/> Gum	<input type="checkbox"/> Carrots
<input type="checkbox"/> Oranges	<input type="checkbox"/> Vegetables
<input type="checkbox"/> Hot dogs	<input type="checkbox"/> Sweet rolls/Donuts/Cakes
<input type="checkbox"/> Cheese (Cheddar, American, Cream, Swiss, etc.)	<input type="checkbox"/> Bananas
<input type="checkbox"/> Soda	<input type="checkbox"/> Crackers
<input type="checkbox"/> Milk	<input type="checkbox"/> Popsicles
<input type="checkbox"/> Lunch meats (Balogna, Summer Sausage, etc.)	<input type="checkbox"/> Melons (Honey Dew/ Cantalope)
<input type="checkbox"/> Yogurt	<input type="checkbox"/> Coffee
<input type="checkbox"/> Candy	<input type="checkbox"/> Ice Cream
<input type="checkbox"/> Cottage Cheese	<input type="checkbox"/> Peanut Butter
<input type="checkbox"/> Presweetened Cereals	<input type="checkbox"/> Fruit Juice
<input type="checkbox"/> Other Cereals	<input type="checkbox"/> Cookies
<input type="checkbox"/> Kool-Aid	<input type="checkbox"/> Apples

Anything else?

Here is a list of foods. Please indicate how often your child asks you to purchase this food.

- 1- Always, every time we go to the grocery store.
- 2- A lot
- 3- Sometimes
- 4- Once in a while, every month or two
- 5- Not very often
- 6- Almost never, maybe once or twice.
- 7- Never

Using the same list of foods, please indicate how often you purchase this food for your child after she/he requests it.

- 1- Always
- 2- A lot
- 3- Sometimes
- 4- Once in a while
- 5- Not very often
- 6- Almost never
- 7- Never

Appendix K

Occurrence of parent/child conversations about commercials.

Do you or your spouse ever talk to your child about the commercials he/she sees on television? Yes No

Can you give me an example of the sorts of things you've talked about?

How often do you talk about commercials with your child?

- Often, several times a week
 Pretty often, about once a week
 Sometimes, every couple of weeks
 Not too often, every month or two
 Almost never, maybe once or twice

Child's Interview

Appendix L

Behavioral Eating Test

The child is escorted individually from the classroom to the laboratory trailer. The experimenter presents the child with a tray of foods and beverages. The tray contains an equal amount of high and low nutrition foods. The low nutrition foods consist of snack foods commonly advertised on Saturday morning television. They include:

1. M & M's
2. Cracker Jacks
3. Chips Ahoy chocolate chip cookies
4. Fruit Loops presweetened cereal
5. Cherry Kool-Aid

The high nutrition foods include:

1. Cheese (mild cheddar)
2. Carrot slices
3. Grapes (green/seedless)
4. Apple slices
5. Orange Juice

The foods and beverages are served in 10 transparent, equal sized plastic cups on a 50cm X 50cm plexiglass tray. All foods and beverages were prepared immediately prior to the presentation of the tray to the child to insure each subject equally fresh and appealing looking food. All foods were prepared in approximately equal-size units and the placement of cups on the tray was randomly determined for each child.

The instructional set to each child was as follows:

We are trying to find out what kids think of different foods. In front of you are a number of small cups of food and things to drink. In a minute I am going to ask you to taste the different foods and drinks, but first I need to make sure you know what all the foods and drinks are. Can you tell me the name of all the different foods and drinks on this tray?

The child is encouraged to name the foods and beverages in any order he wishes. If any of the foods or beverages are unfamiliar to the child, the experimenter names it for him.

That's neat. You knew a lot of the foods and drinks on this tray. Okay (child's name), right now I have to go in the other room for a few minutes. While I am gone, you can eat as much of anything as you wish. If there are some foods or drinks you don't like, you don't have to eat them. I have to go into the other room now, but if you need me for anything while you're eating, just knock on this door and I'll come back to help you. Do you have any questions? (Answer any questions.) Okay, remember you can eat or drink as much of anything as you want. Go ahead and begin.

The experimenter leaves the room for an eight minute period. During this time, the child is observed unobtrusively through a one-way mirror to guard against any procedural confounding (e.g. spillage, hoarding). At the conclusion of the eight-minute period, the experimenter returns to the testing room and says:

Well, it looks as if you've tasted a few of these foods. I need to take this tray back into the other room, but I'll be right back and then we can talk about some other things.

Appendix M
Pretend Eating Test

The experimenter structures the situation by saying:

Do you know what it means to pretend something?
(Give the child an opportunity to talk)...Now I
want you to pretend something. Let's pretend that
your mommy and daddy are going away on a vacation
and they asked me to babysit for you while they are
gone.

The experimenter lays out the first group of six foods on
the table:

Now, I wouldn't know what kinds of foods you would
want to snack on while they were gone. So, suppose
I said, here are six snacks, let's see there's
(allow the child to name the different foods to in-
sure their familiarity; help, if necessary)...
Well, here are six snacks --you can eat three of them.
Which three of these snacks do you think you'd like
to eat?

The experimenter records the child's choices and presents
the second group of six snack foods for "the second day
I was babysitting". After the child makes her selection,
the experimenter continues for the "third" and "fourth"
day of babysitting. After all four groups of snack foods
have been presented, the experimenter presents the first
group of breakfast foods saying:

Okay, now what about breakfast. I wouldn't
know what you want for breakfast, so you would
have to tell me. Let's see, you could have....

The child and the experimenter name all the foods and bev-
erages presented. The child is asked to choose three
foods he would want for breakfast. The procedure for choos-
ing breakfast foods is repeated for "the second day I was
babysitting".

Snack Group #1	Pepsi M&M's Potato Chips	Apple Juice Cheese Peach
Snack Group #2	7 Up Cracker Jacks Lollipop	V-8 Juice Apple Carrot
Snack Group #3	Cookies Jelly Beans Popsicle	Unsalted Sunflower kernels Grapes Yogurt
Snack Group #4	Fritos Twinkie Life Savers	Banana Unsalted Peanuts Cottage Cheese
Breakfast Group #1	Grape Kool Aid Donut Fruit Loops	Milk Orange Oatmeal
Breakfast Group #2	Cherry Kool Aid Pop Tarts Lucky Charms	Orange Juice Cantelope Cheerios

Appendix N

Child's Nutritional Knowledge

When the child completes all six sets of food selection on the PET, the experimenter again presents, one at a time, each food stuff presented previously. The examiner structures the child's responses by saying:

Now I want to ask you a different kind of a question. Let's think about (name of food). Do you think that (name of food) is healthy and good for you or not healthy and bad for you?

The experimenter records the child's response and continues this way for each of the remaining 35 foods. The order of presentation for each child is randomized and listed for the experimenter to follow.

Appendix 0

The occurrence of parent-child conversations about commercials and the child's conceptions of why commercials are shown on television.

Do you watch TV at home?

What kind of things do you watch? _____

When you watch TV have you ever noticed that there were many different things you could watch. Like there are cartoons on Saturday morning and funny shows that have real people doing funny things and shows with police officers and sports.

(Encourage the child to get involved in the conversation -- introduce the idea of commercials if child doesn't. Get child talking about ads they've seen but don't talk about the intent of commercials. If child introduces this topic, note response on question 2.)

1) Do you and your mom or dad ever talk about the commercials on television? Yes _____ No _____

1A) What kinds of things do you talk about? _____

2) Why do you suppose they show commercials on television?

Children's attitude toward commercials

The assessment of this variable begins with the experimenter calling the child's attention to the previous conversations about commercials and programs.

When we watch TV, we see both programs and commercials. Before, you and I were talking about the commercials or ads that you've seen on TV. (If the child mentioned any specific commercials previously, mention them here.) Right now, I want you to think just about the commercials you've watched on TV. How much do you like them? If you like ads a lot, then put a big X through this very happy face. If you like ads just a little, then put a big X through this sort of happy face. Now, if you really don't like ads, but you don't dislike them either, then put a big X through this middle face that's not smiling or frowning. If you don't like ads just a little, then put a big X through this face that's frowning just a little. If you really don't like ads at all, then put a big X through this face with the big frown. Okay? (Answer any questions child may have.) Go ahead and put a big X through one of the faces.

After the child marks one of the faces, confirm the child's answer to insure the child marked the answer she intended to mark.

You put a big X through this face to show me that (for example) you like ads just a little. Is that right?

The second question is a little more complicated and the experimenter needs to take time explaining the procedure to the child. First complement the child on the task just completed.

Okay, you did a neat job of figuring out how to do this. Let's try another one. This time I want you to think about the programs or shows you watch on TV too. Remember when we talked about the programs you watch on TV? (Remind the child of programs discussed previously.) Look at these pictures. These squares are supposed to be television sets and this is the face of the boy/girl that's

watching the TV. In some of these TV sets, there is a picture of a box of cereal. That means there is a commercial on the TV. In the other TV sets there are drawings of people. That means there is a television show on. See this very happy face under the TV set showing a commercial? If you like commercials a lot more than the programs, then put a big X through this very happy face watching a commercial. If you like commercials just a little more than the programs, then put a big X through this sort of happy face watching a commercial. If you like commercials and programs just the same, then put a big X through this face that's watching both a commercial and a program. If you like programs just a little more than the commercials, then put a big X through this sort of happy face that's watching a television program. If you like programs a lot more than the commercials, then put a big X through this very happy face that's watching a television program. Okay? (Answer any questions the child has.) Go ahead and put a big X through one of the faces.

After the child marks a face, confirm the child's answer to insure that the child marked the answer she intended to mark:

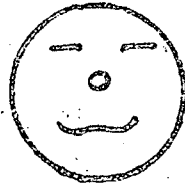
You put a big X through this face to show me that (for example) you like both commercials and programs just the same. Is that right?



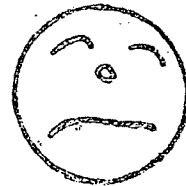
A Lot



Pretty Much



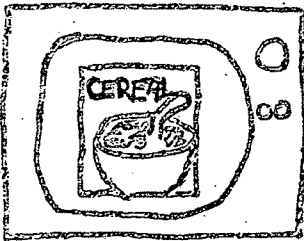
They're OK



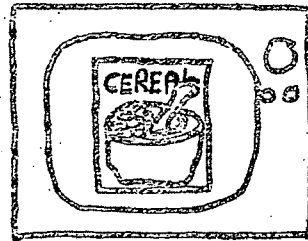
Not Very Much



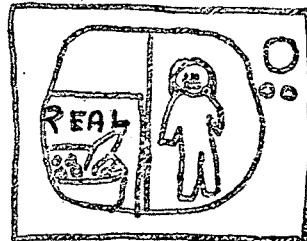
Not At All



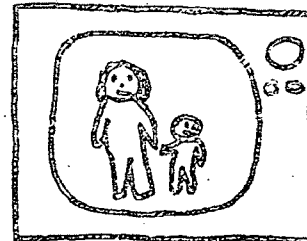
Commercials a lot more than the program.



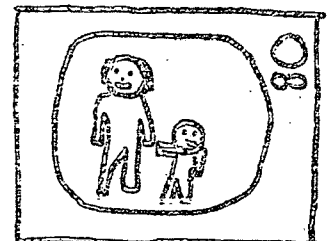
Commercials a little more than the programs.



Commercials and programs the same.



Programs a little more than commercials.



Programs a lot more than commercials.

Appendix Q

Foods loading on PIA and Relative Success Factors

Purchase Influence Attempts

<u>Pro-Nutrition</u>	<u>Loading</u>	<u>Low-Nutrition</u>	<u>Loading</u>
Bread	.58472	Gum	.58452
Oranges	.68097	Soda	.47171
Hot Dogs	.37155	Candy	.72012
Cheese	.74715	Presweetened Cereals	.60991
Milk	.52038	Kool-Aid	.49381
Lunch meats	.44816	Chips	.51512
Cottage Cheese	.39334	Sweet Rolls	.53994
Unsweetened Cereals	.50810	Popsicles	.63448
Carrots	.74860	Ice Cream	.57591
Vegetables	.75091	Cookies	.75517
Bananas	.58097		
Crackers	.58459		
Melons	.58642		
Peanut Butter	.48304		
Fruit Juice	.62154		
Apples	.68501		

Relative Success

<u>Pro-Nutrition</u>	<u>Loading</u>	<u>Low-Nutrition</u>	<u>Loading</u>
Bread	.55656	Gum	.61038
Oranges	.75023	Candy	.68211
Hot Dogs	.52052	Presweetened Cereal	.43273

Relative Success (continued)

<u>Pro-Nutrition</u>	<u>Loading</u>	<u>Low-Nutrition</u>	<u>Loading</u>
Cheese	.73234	Kool-Aid	.31344
Milk	.40695	Chips	.31890
Lunch Meats	.44627	Sweet Rolls	.50996
Cottage Cheese	.42370	Popsicles	.66435
Carrots	.80197	Ice Cream	.60845
Vegetables	.71474	Cookies	.77270
Bananas	.73053		
Crackers	.39853		
Melons	.50039		
Fruit Juice	.58610		
Apples	.55945		

Appendix R

Means and Standard Deviations of Variables on the Three-day

Food Record

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>
Percent RDA - calories	98.973	21.634
Percent RDA - protein	219.986	49.482
Percent RDA - Calcium	124.284	33.747
Percent RDA - Iron	102.365	33.975
Percent RDA - Vitamin A	215.270	148.446
Percent RDA - Thiamine	112.919	31.181
Percent RDA - Riboflavin	156.940	41.524
Percent RDA - Niacin	98.416	28.739
Percent RDA - Vitamin C	267.703	165.193

Appendix T

Correlations of Other Items with Regression Variables

<u>BETCaI with</u>	<u>BETG with</u>	<u>TotalC with</u>
Kool-Aid -.52	Orange juice .46	Kool-Aid .84
M&M's -.44	Grapes .38	M&M's .65
Nutritious	Apples .40	Total grams-
Calories-	Carrots .38	BET .78
BET .41	Kool-Aid -.52	
<u>Junk with</u>	M&M's -.46	
	Nutritious	
Commercial	grams- BET .62	
TV Child -.36		
<u>LogTVP with</u>	<u>LogTVK</u>	<u>LogTVC with</u>
Self-report	Self report	Commercial
TV-Parents .84	TV-Parents .55	TV-Parent .44
Self report	Self report	Commercial
TV-Child .42	TV-Child .73	TV-Child .48
Commercial	Commercial	Commercial
TV-Parent .99	TV-Parent .61	TV-Coview .98
Commercial	Commercial	Public TV-
TV-Child .61	TV-Child .97	Coview .39
Commercial	Commercial	
TV-Coview .46	TV-Coview .51	
Other Cable	Public TV-	
TV-Child .44	Child .36	
<u>RatC with</u>	<u>RPubP with</u>	<u>RPubK with</u>
Commercial	Public TV-	Public TV-
TV-Coview .49	Parent .87	Parent .38
Public TV-	Public TV-	Public TV-
Parent .52	Child .44	Child .82
Public TV-	Public Tv-	Public Tv-
Coview .59	Coview .73	Coview .36
<u>RPubC with</u>	<u>SES with</u>	<u>PATot with</u>
Public TV-	Self report	Self report
Parent .50	TV-Parents .38	TV-Parent -.39
Public TV-	Self report	Self report
Child .36	TV-Child .35	TV-Child -.36
Public TV-	Commercial	
Coview .74	TV-Parent .40	
	Commercial	
	TV-Child .39	

(continued)

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<u>PAKTot with</u>	<u>KAtTAd with</u>	<u>JunkNo with</u>
Parent attitude item #4 .47	Percent Vitamin A on 3-day Food Record .36	Ratio of empty to total calories on Food Record .37
Parent attitude item #5 .37		Percent calories consumed on Food Record .38
Parent attitude item #6 .39	<u>JunkCal with</u>	Total calories recorded on Food Record .38
Parent attitude item #8 .39	Ratio of empty calories to total calories on Food Record .93	
Parent attitude item #9 .44		