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THE EFFECTS OF LOW-NUTRITIONAL, PRO-NUTRITIONAL, AND NON-FOOD
COMMERCIALS ON THE EATING BEHAVIOR OF CHILDREN

by

Nancy Boyd Lemnitzer

B. A., Pacific Lutheran University, 1973

Presented in partial fulfillment of the requirements for the degree of

Master of Arts

UNIVERSITY OF MONTANA

1978

Approved by:

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Psychology

The Effects of Low-Nutrition, Pro-Nutrition, and Non-Food Commercials on the Eating Behavior of Children

Director: D. Balfour Jeffrey, Ph.D.

Children's television has recently come under fire for the advertisement of foods high in sugar and low in nutrition. However, much of the existing research is correlational or relies on questionnaire data, with the obvious complications of self-report. Little has yet been garnered on the extent to which commercials affect actual behavior. Also, there is little research as yet on the effects of pro-nutritional advertising. The purpose of this study was to provide experimental data on the role of children's television advertising in food consumption, to provide behavioral as well as self-report measures of experimental effects, and, in addition, to look at the effect of pro-nutritional advertising.

Children ages four and five from preschool programs in Missoula, Montana were randomly assigned to one of three treatment groups. They were subjected to a 12-minute segment of typical Saturday morning television programming which was edited to contain six commercials, varied for the three experimental conditions. Group I saw six commercials for low-nutrition, high calorie foods, Group II saw six commercials for pro-nutritional foods, and Group III saw six commercials for toys. Dependent measures consisted of a behavioral eating test -- a tray with equal-sized portions of low and pro-nutritional foods and beverages -- and an evaluative Likert-type scale on which foods and beverages from the taste test could be rated. Taste test and food evaluative scale were administered one week prior to, and immediately following, the experimental manipulation.

Analyses of variance with repeated measures, as well as other statistical analyses were conducted. Significant pre- to post-test changes were found. Analyses of pre- to post-test changes by group revealed that changes were significant for the low-nutrition condition but not for pro-nutritional or non-food groups. Significant between group and interaction effects were not found. Post-test interview data suggested an impact on food attitudes primarily for the low-nutritional group.

This study was the first experimental investigation to include both behavioral and self-report cognitive measures on the effects of television food advertising on children's eating habits. The results suggested an effect for low-nutritional ads but none for pro-nutritional or toy ads. Methodological refinements for future research are suggested and preliminary public policy issues are raised.

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CHAPTER I

INTRODUCTION

The eating habits of Americans in the 1960's and 1970's have been an increasing source of interest and concern, discussed in the popular press, studied by the U. S. Senate (U. S. Senate Select Committee on Nutrition and Human Needs, 1977), and the topic of much research (Mayer, 1968; Federation of American Societies for Experimental Biology, 1976; Mauro & Feins, 1977; Nizel, 1974; Navia, 1973; etc.). In America and other affluent societies it is becoming apparent that there is a connection between overconsumption of foodstuffs and the occurrence of many chronic degenerative diseases. The American diet, rich in cholesterol, saturated fat, calories, sugar and salt, has been associated with arteriosclerosis and coronary heart disease, stroke, hypertension, obesity, diabetes, gallstones, and cancer of the colon and breast (Connor, 1977, U. S. Senate Select Committee on Nutrition and Human Needs, 1977).

Much criticism has recently been leveled at television, specifically television advertising, as a primary source of learning and influence of food preferences and eating habits. Critics point out the heavy concentration of advertising that is negatively related to health (Masover & Stamler, 1977; Manoff, 1972), much of which is beamed at a child audience which is particularly naive about nutrition

and susceptible to attempts at habit-shaping (Choate, 1976; Mauro & Feins, 1977; Ferguson, 1975; Sharaga, 1974). The observational learning model of acquisition of behavior (Bandura, 1971) would appear to give theoretical and experimental credence to television modeling as an important variable.

However, despite crescendoing outcries from various sectors, little methodologically sound, experimental data exists to clarify the connections between television viewing and eating behavior (Roberts, in press; Rychtarik, Knivilla, Jeffrey, 1978; National Science Foundation, 1977). This study will attempt to provide such data by experimentally manipulating exposure to television advertising.

Eating Habits and Their Consequences--Obesity and Major Health Problems

The daily diet of people in the U. S. has changed drastically in the last 40 years. America has gone from a three-meal-a-day, meat-and-potatoes menu, to one of fast foods at chain restaurants and in-between snacking and nibbling. For instance, from 1962 to 1968, our consumption of cake as a snack food increased by 70 percent, snacking of cookies was up 40 percent; curls, chips and nuts was up 63.2 percent and chocolate candy was up 46.5 percent. Per capita consumption of cookies increased from 1.72 pounds to 11.92 pounds per year and of candy from 2.15 pounds to 17.54 pounds per year (Navia, 1973). The U. S. Senate Select Committee on Nutrition and Human Needs (1977) reports that consumption of fat rose from 125 grams per person per day in 1900 to 156 grams per person per day in 1973, an increase which is

equivalent to about two-and-a-half tablespoons of butter or margarine a day or about 24 pounds a year. Also, per capita consumption of refined sugar increased from 76.4 pounds per year in 1909 to 101.5 pounds a year in 1971, the bulk of which was consumed in sweetened soft drinks.

The most obvious result of the dietary practices of Americans is obesity and overweight¹. Over 70 million Americans are overweight and that number increases yearly (Jeffrey and Katz, 1977; Stunkard, 1976; Stuart and Davis, 1972). In addition, about 25 percent of America's children are overweight and about 80 percent of them grow up to become obese adults (Collipp, 1972; Mayer, 1968). Also, children and siblings of overweight persons are likely to become overweight (Eden, 1975). The proportion of obese people appears to be higher now than it ever has been (Jeffrey, 1977).

A number of factors have been postulated as contributors to obesity, from genetic or metabolic disturbances (Johnson, Burke and Mayer, 1956, 1968; Grossman, 1960) to psychological factors (learned habits, coping with various emotions, etc.) (Schacter, 1977; Stuart & Davis, 1972).

¹The term "overweight" is used to denote body weight that is above statistical norms for people of the same age, sex, height and body build. The term "obese" refers to an excess of fat content, adipose tissue, in the body. Obesity depends on how much fat content is carried rather than actual weight. One can, in fact, be overweight (weighing more than the average for one's sex, age, and height) but not obese; and, one can be obese (carrying an excessive amount of fat in the cells) without being overweight. While it is important to make a distinction between the two terms, a person whose weight is considerably above statistical norms is probably obese as well as overweight. So in this manuscript, the terms are used interchangeably.

Although there are still questions to be answered regarding its determinants, research to date suggests that obesity is largely a result of an excessive intake of calories and/or an insufficient energy expenditure (Jeffrey, 1976a; Mayer, 1968; Nelson, 1977; Forbes, 1967; Wilson, Farber, Kimbrough, and Wilson, 1969). In particular, there is agreement that the consumption of high-sugar, high-fat, and high-calorie foods increases its probability (Connor, 1977; Jeffrey & Katz, 1977; Choate, 1975; Mayer, 1968).

Numerous health risks of such diets and their frequent result, obesity, have been documented. For example, high ingestion of sugar has been connected with diabetes (Cohen, 1977; Mayer, 1968; U. S. Senate Select Committee on Nutrition and Human Needs, 1977); gastric ulcers and dyspepsia (Yudkin, 1977), periodontal gum and bone disease (Nizel, 1974), and arteriosclerosis (Yudkin, 1977).

The connection between sugar and dental caries is increasingly well-documented. Studies have shown that societies that consume small amounts of sugar have few decayed, missing, or filled teeth, while societies that consume large amounts of sugar, such as the U. S., have many (Nizel, 1974; U. S. Senate Select Committee on Nutrition and Human Needs, 1977). In an extensive review of the literature on the health aspects of sucrose, The Federation of American Societies for Experimental Biology (1976) concluded: "Of all the carbohydrates tested, sucrose is among the most cariogenic." Expenditures for dental care are staggering. In 1971, expenditures totaled about 4.7 billion and only about 40 percent of the population saw dentists

that year. It is estimated that it would cost \$8 billion more annually to repair completely the damage caused by caries (Nizel, 1974).

High sugar diets may also affect metabolic functions. This adverse effect on metabolism may result in reductions in growth rate, a shortening of life span, interference with protein utilization, reduction of glucose tolerance, increases in concentration of certain hormones in the blood, increases in the amount of fat in the liver, and increases in the size of the liver and kidney (Yudkin, 1977).

High ingestion of fat, such as contained in fried foods, commercial chips and dips, animal protein and dairy products, is significantly connected with elevated levels of serum cholesterol and triglycerides, which research suggests may lead to arteriosclerosis and heart disease (Armstrong, 1976; U. S. Senate Select Committee on Nutrition and Human Needs, 1977; Connor, 1977).

An excessive intake of salt (in potato chips, cured meats, etc.) has been found to cause an increase in blood pressure and hypertension (Meneely and Batterbee, 1977), to be connected to cerebrovascular disease, changes in levels of gastric acid secretion and stomach cancer, and migraine headaches (Brainard, 1976; Batterbee and Meneely, 1977).

People who are obese have a higher incidence than normal weight individuals of the previously mentioned diseases because they typically eat more high-fat, high-sugar, high-salt, high-calorie food (Collipp, 1975; Mayer, 1968; U. S. Senate Select Committee on Nutrition and Human Needs, 1977). In addition, they have more frequent problems

with arthritis, back pain, and skeletal-joint difficulties, constipation, hernias, and hemorrhoids (Jeffrey and Katz, 1977). However, the ultimate health risk is shortened life span. Armstrong (1951) contrasted the mortality rates of overweight and normal weight individuals. He found the mortality rates were 70 percent higher for men markedly overweight and 42 percent higher for men moderately overweight; for women the percentages were 61 percent and 42 percent respectively. Dr. Cooper, Assistant Secretary of Health, Education and Welfare, succinctly summarized the health risks associated with obesity in his testimony before the U. S. Senate Select Committee on Nutrition and Human Needs (1977):

"Obesity aggravates cardiovascular disease and osteoarthritis and increases the liability to hypertension, arterosclerosis, hernia, and gallbladder disease. It also may facilitate the emergence of latent diabetes in predisposed individuals as they approach an advanced age and adds to the hazards of surgery; it makes for postural derangement, and in extreme cases, it is the cause of obesity dyspnea with pulmonary insufficiency . . . Now medioacturial statistics make it quite clear that the obese do not live as long as the lean. The chief causes of death among overweight individuals are cardio-vascular-renal diseases, diabetes, and disorders of the liver and biliary tract."

In addition to the higher incidence of medical problems, overweight people often have psychological problems such as extreme self-consciousness, poor self-image, depression, interpersonal suspiciousness, etc. For example, obese girls have been found to be more passive and to have an excessive concern with self-image, to expect rejection and therefore to isolate themselves from social contact (Bruch, 1973; Monello and Mayer, 1963). Research suggests that overweight children may feel inadequate, doubt their own worth and become shy and socially

isolated (Collipp, 1975; Jeffrey and Katz, 1977) and that obese adults view their bodies as grotesque and ugly and experience frequent anxiety and depression (Jeffrey and Katz, 1977).

Obesity also has economic costs. A United States Government survey indicated that \$16,000 is spent each minute on various dietary devices and programs. Over a year's time that comes to a staggering 8 billion dollars. In testimony before the U. S. Senate Select Committee on Nutrition (1977), Dr. George Briggs, professor of nutrition at the University of California, Berkeley, stated, based on a Study by the Department of Agriculture, that the nation's health care bill in 1975 was about \$118.5 billion and could exceed \$230 billion by 1980. However, he emphasized that improved nutrition might cut the nation's health bill by one-third.

Summary. There is increasing evidence that the consumption of high-sugar, high-fat, high-calorie foods is a determinant of obesity and many of the nation's most major physical maladies. Furthermore, there is evidence that a decrease in the consumption of these foods will help in the treatment and prevention of obesity and its consequent health risks. The physical, psychological and economic costs of the present eating habits of Americans are considerable and change would appear to be desirable. The U. S. Select Committee on Nutrition and Human Needs (1977) has recommended a set of dietary goals for the U. S. which call for (1) a reduction in sugar consumption by 40%; (2) reduction in cholesterol consumption to about 300 mg. a day; and (3) reduction in saturated fat consumption to account for about

10 percent of total energy intake. However, change is difficult. To understand how to change eating behavior, it seems necessary to clarify what determines and influences it.

Acquisition of Food Preference and Eating Behavior--
A Social Learning Model

The premise of this study is that food preferences and eating behaviors are acquired or learned on the basis of social learning principles. A number of researchers espouse this view (Jeffrey and Katz, 1977; Stuart and Davis, 1972; Mahoney & Mahoney, 1976). They suggest that eating behavior and food preference are acquired through imitation and reinforcement of the food preferences and socio-cultural factors in the environment. Research has suggested that acquisition of a wide range of human behavior can be attributed to imitation and reward processes; for example, facial expression in infants (Gardner, 1970; Achenback, 1974); language acquisition (Clifton, 1970; Lenneberg, 1964; Fraser, Bellugi, and Brown, 1963; Lovaas, 1966; Lovaas, Berberich, & Schaeffer, 1966); sex-typing (Hetherington, 1970; Bandura, 1962; Miller and Dollard, 1941; Sanford, 1955; Mussen and Parket, 1965; Bandura, Ross, and Ross, 1963b); aggression (Bandura and Walters, 1963; Bandura, Ross & Ross, 1963a); phobias (Bandura, Grusec and Menlove, 1967; Hill, Liebert and Mott, 1968); and altruistic behavior (Bryan and Test, 1967; Rosenhan and White, 1967).

The most comprehensive theory of imitation or modeling has been developed by Bandura (1971). He suggests that acquisition of modeled behavior has four components: attention, retention, motoric

reproduction, and motivation. These processes are summarized briefly:

Attentional processes refer to the observer focusing on the modeled stimuli. Attention involves orienting to the specific stimuli as well as discriminating the stimuli and separating the performance cues from the rest of the display. Attentional discrimination is a developmental process. As the result of different experiences in the biological/psychological maturation processes, children may become differentially affected in two ways. First, different models and situations become conditioned cues for attending. Second, other cues come to be utilized by the child in discriminating the component responses. The incentives given for attending, either explicitly by an experimenter prior to observation or implicitly by the nature of the model, play a role in this process. Characteristics of the model will influence both attention and performance of observed responses, presumably as a result of the interactions the observer has had with similar models in the past. Consequence cues also play a role in attention and performance. Finally, the arousal state of the observer will have an influence on the amount of attention an observer will pay to a model.

Retention processes refer to the individual storing in his/her memory the information attended to in the first stage. After attending to a response, the observer must be able to encode the information provided by his/her discriminations. Two encoding systems have been identified. One is a visual, imaginal system; the other is a verbal system. As children mature, the verbal system is probably responsible

for both the increasing speed of observational acquisition and retention capabilities. Symbolic coding is one aspect of the encoding process, and rehearsal also plays a part. Rehearsal may be provided by the stimulus itself, in the form of repetitions of the display, or by the observer. Rehearsal by the observer is either overt or covert, and the use of covert rehearsal appears to be a developmental process.

Motor reproduction processes refer to the actual physical or verbal imitative response. Once the observer has attended to a modeled sequence, and coded and stored the stimuli, the symbolic representations must be retrieved and performed. The retrieved representation must be able to provide the information that the original external modeled stimuli provided. Other performance information will be furnished by the immediate environment, in the form of accuracy of feedback and self-observation (Bornstein, Hamilton, Miller, Quevillon, and Spitzform, 1977). Other factors affecting motoric reproduction are the physical capacities of the observer to perform the response and the nature of previously mastered component physical or verbal responses.

Motivational processes refer to the reinforcements or incentives for the individual to perform the response as well as to attend to and retain the modeled stimuli. Observers may be capable of attending to and discriminating a modeled event, encoding and retrieving the resulting representation, assembling the necessary component responses, yet still may not perform the observationally learned response. The final and necessary process involves motivation and reinforcement.

Reinforcement can either be external, vicarious, or self-generated (Bornstein and Quevillon, 1976). These are two interlocking processes that operate throughout the other three processes yet also operate after they have been engaged in effectively. Past experience and factors present in the modeling sequence will determine the motivation for an observer to engage in all three processes and the degree to which he/she engaged in them. Once a behavior has been acquired, past experience and current incentives tend to determine whether or not it will be performed.

Within the present context, the value of Bandura's theory, in particular, and social learning theory, in general, lies with its ability to empirically examine the acquisition of eating behavior.

Experimental Findings. This conceptualization of observational learning has received extensive support (Bandura, 1971). However, this theory is not without its critics (see Gerwirtz and Stingle, 1968), particularly with regard to the role of reinforcement and developmental processes in observational learning.

A number of variables have been investigated which may facilitate or hinder observational learning. Factors isolated include observer characteristics (age, race, SES), model characteristics, the number of models, the delay between exposure and testing, and the consequences the model receives (Bandura, 1969; Flanders, 1968).

Complex interactions are typical of findings in most research in this field. For example, children have been found more likely to perform behaviors modeled by an older child or adult than by a peer

(Miller and Dollard, 1941; Flanders, 1968). However, this relationship is stronger with upper-class children than with lower-class children (McMannis, 1974). Lewis (1974) found that modeling by a parent increases the credibility of a message. Also, younger models are less likely to be imitated than same-age models. These results are further complicated by intelligence factors. When the task is one which requires some complexity in cognitive functioning and when instructions are given to imitate, higher IQ observers tend to imitate more (Forehand, Robbins and Brady, 1973).

The number of exposures to a modeled behavior has been shown to affect the subsequent behavior of the observer. Bandura (1973) has shown that increasing the number of aggressive acts viewed also increases the likelihood of aggressive behavior by the observer. Indirect evidence for a repetition effect is also suggested by studies of food choice (Ray, 1971; Stewart, 1964; Wallerstein, 1967). These investigations indicate that modeling is also enhanced as a function of the number of models (Barnwell, 1966).

The consequences the model or the observer receives have been demonstrated to affect the subsequent behavior of the observer under a number of circumstances and across a wide range of behaviors (e.g., Bandura, 1969; Jeffrey, Hartmann and Gelfand, 1972; Thelen, McGuire, Simmonds and Akamatsu, 1974). Vicarious punishment has been shown to decrease the spontaneous imitation of a modeled response (Liebert, 1970; Bandura, 1971). The effects of vicarious and direct consequences are influenced by moderator variables such as age. On

a gradient from pre-school to sixth grade, the effects of vicarious reinforcement on recall become significantly less (Levy, McClinton, Rabinowitz and Walkin, 1974).

Most observational learning research has focused on behaviors such as aggression, language, phobias, and altruism. Little research has been conducted on children's food choices. Duncker (1938), in a study clearly foreshadowing modeling approaches, demonstrated the effectiveness of both live peer models and brief stories in affecting the subsequent food choices of children. A more recent study (Barnwell, 1966) also substantiates the impact of modeling on food choice. Barnwell found that children could be influenced (by exposure to live models) to choose a "novel drink" over a popular soft drink. Also imitation increased as a function of the number of models displaying the novel choice. Harris and Baudin (1972) compared the modeling influence of "Popeye" cartoons and live models extolling the virtues of spinach and rutabagas. They found that the effects of viewing a film of Popeye eating spinach were not distinguishable from those of seeing a live model eating spinach, that both procedures increased spinach eating; similarly, exposure to a child favoring rutabagas increased rutabagas eating. It would appear from these few studies that both live and filmed models can influence eating behaviors and that the degree of influence can be enhanced by exposure to an increasing number of models.

Observational Learning Methodology. In addition to the empirical findings and theoretical significance of modeling research, the social

learning approach has been an important methodological contribution with its emphasis on behavior rather than attitudes. Social learning researchers have observed people in a number of studies, measuring the frequency or duration of phobic behavior, aggressive acts, language, and numerous other behaviors (Bandura, 1969). These behaviors have been observed by experimenters present with the participants, through one-way mirrors, on television monitors, and by people in the natural environment.

Observational procedures have been developed which include the essential psychometric characteristics of reliability and validity (Jeffrey, 1974; Johnson and Bolstad, 1973; Weick, 1968). For example, Bandura (1973) in studying children's imitation of aggressive behavior, designed a procedure utilizing a plastic Bobo doll. The subject first observed the model physically striking the doll. Then without the model present, the child was allowed to play with the Bobo doll while behind a one-way mirror, and the experimenter unobtrusively measured the number of aggressive acts the child displayed toward the doll. The aggressive acts were operationally defined and coded, and high interrater reliability coefficients were obtained.

Food preferences and consumption have also been investigated using an observational methodology. A typical paradigm is to provide a disguise of a taste test experiment while behind a one-way mirror an experimenter is measuring the actual type and amount of food eaten (Jeffrey & Shirley, 1977; Price & Grinker, 1973). Investigators have utilized this surreptitious assessment technique both in the study of

obesity (Grinker, Hirsch & Smith, 1973; Schachter, 1971; Schachter, Goldman & Gordon, 1968) and alcoholism (Higgins & Marlett, 1973; Marlatt, Demming & Reid, 1973; Miller & Hersen, 1972a, 1972b). Data from these early studies involving taste test procedures have enough 'face validity' for their continued development and evaluation to be indicated. New studies have indicated that the taste-test paradigm is also a feasible procedure for measuring the effects of television commercials on food consumption in children. Lemnitzer, Jeffrey, Hess, Hickey, and Stroud (1978) administered a 12-item taste-test (eight common foods and four beverages) to children aged four and five on two separate occasions one week apart. Test-retest correlations on the behavioral eating test were found to range from .10 to .98, with most correlations over .80 on the combined variables, such as total calories consumed. Thus, it appears that the taste-test behavioral type of measurement may show promise as a nonintrusive, nonreactive assessment technique which may yield reliable data unencumbered by expectancy or attitudinal factors (Briddell and Nathan, 1976).

Summary. There is experimental evidence that a wide range of human behaviors, including eating behavior and food preference, can be acquired through observational learning and reinforcement. Within a context of socio-cultural factors, such as available food, parents' teachings, parents' food habits, school lunch programs and nutrition education, peers' eating behavior, and food advertising, children learn to like and to eat particular kinds of foods. Critics

suggest that the last of these influences, food advertising, especially via television, is a particularly potent force of modeling of attitudes about food and development of food preferences (Choate, 1976; Television and Children, 1975; Masover and Stamler, 1977; Mauro and Feins, 1977).

Television

Television and Food Commercials. Since World War II, the largest expenditure for public information on diet in the United States has been made by the food industry for television advertising. In 1975, about \$1.15 billion was spent on television food advertising. This represents about 28 percent of total television advertising spending. (U. S. Senate Select Committee on Nutrition, 1975). Manoff (1972) speaking to the 9th International Congress on Nutrition, suggests that more than 50 percent of the money spent on food advertising may be negatively related to health, advertising items that may be generally characterized as high in fat, saturated fat, cholesterol, sugar, salt, or alcohol. This, he feels is a conservative estimate, not including sugared cereals and certain cake mixes, meat products, eggs, butter and cheeses that may be high in one or more of the dietary risk factors.

Masover and Stamler (1977) report on a study of food advertising on four Chicago television stations. They found that almost 70 percent of the time was devoted to advertising promoting food generally high in fat, saturated fat, cholesterol, sugar, and/or salt and that only 3 percent of the time was devoted to fruits and vegetables. They

found an even less healthful balance of weekend food advertising in which about 85 percent of the time was devoted to foods high in fat, saturated fat, cholesterol, sugar, or salt. During the sample weekend period, no advertising time was given to fresh fruit or vegetables.

The New York State Assembly studying television advertising in the New York region (Mauro and Feins, 1977) found that food products, fast food restaurants and other edibles made up close to 80 percent of all the advertisements broadcast. They found that the mix of food products advertised on children's (age 11 or younger) programs was even more limited than that advertised on television generally. Their results appear as follows:

	<u>Number of Commercials</u>	<u>Percent of Commercials</u>
Cereals	3,832	46.8
Candy and gum	1,627	39.8
Cookies and crackers	841	39.5
Meat and poultry	2	0.0
Vegetables	1	0.0
Cheese	1	0.0

In another survey, Barcus (1971) monitored four Saturday mornings of children's television advertising. He found that 67 percent of the ads were for cereals, snacks, candies, sweets, chewing gum and soda pop. Other research reported in the New England Journal of Dentistry for Children has indicated that the majority of edible products advertised on television contain a high percentage of sugar, sometimes as much as 68 percent (Choate, 1975).

It appears that many of the foods that are advertised on children's television are high in calories, or high in sugar, or low in protein, vitamins, and minerals. These foods are considered by most nutritionists to be of low or of anti-nutritional value.² (Choate, 1976).

Television Viewing. The hours of exposure to television are well-documented. Ninety-six percent of the American population have television sets in their homes. Children under five watch an average of 23.5 hours of TV a week. The average viewer under 12 watches 20 hours a week. In one year this average young viewer will watch over 1,000 hours and by high school graduation the typical teenager will have logged at least 15,000 hours before the screen--more time than he will have spent on any other activity except sleep (Schram, Lyle and Parker, 1961). During a year this average child will watch 200 hours of advertising, which means he will view approximately 22,000 commercials (Choate, 1976); and before adolescence he will see roughly 350,000 attempts to influence his buying habits. Each year approximately 5,000 of these commercials will be for edible products, such as snacks, candies, and pastries.

²For clarity of communication, the generic term "low nutrition" will be used in this proposal to refer to foods which are relatively high in sugar, or high in fat, or low in roughage, or low in proteins, vitamins and minerals. The term "pro-nutrition" will be used to refer to foods which are relatively low in sugar, low in fat, or low in calories, or high in roughage, or high in proteins, vitamins, and minerals.

Advertising Strategies. The child market, it seems, is particularly lucrative for several reasons. First, pre-adolescent children represent a substantial and significant consumer market for many product categories. Second, they are an influential force in the purchase of products directly consumable as well as those used by the entire family. Third, they represent a future adult consumer market whose attitudes towards products advertised and toward television commercials are in the process of formation (Ferguson, 1975).

Most of the research conducted on the effects of children's advertisements has been done by advertising agencies to evaluate the effect of their commercials in promoting the sponsors product; in effect, to build a technology that will create more powerful commercials. The specific results of this research are often only furnished to the sponsor and are not made available to the public. Some of the results, however, have been made known. Advertising researchers have learned that television advertising has a clear lead over other major media in terms of believability, authority, and influence (Rubinstein, Comstock, and Murray, 1971); there are different ideal numbers of repetition for different kinds of products, brand positions, advertising formats, and advertising goals (Ray, 1971; Stewart, 1964; Wallerstein, 1967; Zielske, 1959); advertisements are more effective (that is, remembered and acted upon) when they appear in earlier and end positions (Ray, 1969; Ward and Wackman, 1973); commercials in an exciting, suspense program will be less well remembered and acted upon than those in a situation comedy

(Kennedy, 1971); people who rate the program "very good" or "their favorite" are more likely to recall the commercial than those who feel it is "fair" or "poor" (Clancy, 1971); emphasis on motion within advertisement is much more effective than static pictures or words, as are scenes which demonstrate the product, show someone wanting and enjoying it or show an extrinsic reward or a new or "Magic" power (Wells, 1965).

Basic appeals used to sell foods to children are (1) taste; (2) texture; (3) fun; (4) convenience; (5) peer status; and (6) (and last), healthy nutrition (Mauro & Feins, 1977). Basic selling techniques for children's products are premium offers, appeal to adult authorities, and special visual effects such as larger than life products (Atkin, 1975; Atkin and Heald, 1972; Mauro & Feins, 1977).

Viewer Variables. The amount of actual television viewing, and consequently exposure to television commercials, varies depending on a number of socioeconomic, intellectual, personality and developmental variables. In general, television viewing begins at age two, increases rapidly until age seven and continues to rise until it peaks at adolescence (Lyle & Hoffman, 1972). Fowles (1975) reports that children as young as 18 months are attentive to television material and visual qualities. Cereal companies have learned that two-year-olds can identify cereal boxes with premiums in them (Choate, 1975). Between three-and-a-half and four, children are able to recognize that the cereal ad is separate from the program (Choate, 1975).

Schram, Lyle & Parker (1961) found that upper-class children, children with high IQ's and children of parents with higher education watched TV less than lower class children, children with lower IQ's and children of parents with less education. However, a more recent study, Lyle and Hoffman (1972) suggested that as television has become more pervasive, the differences between socio-economic and intelligence groupings have become less apparent.

A variety of personality characteristics are also presumed to be of importance in television viewing. For example, Murray (1972) found heavy viewing to be correlated with interpersonal passivity. Schramm, et al., (1961) found that in times of personal stress or frustration, television use increases. Anast (1966) found that children with a sensation orientation preferred television and movies, while those who were more intuitive preferred novels and print. These findings are somewhat limited, but do suggest that there may be important personality variables which affect viewing habits.

Developmental Variables. In recent years, researchers have begun to look at developmental variables in a more systematic manner (Ferguson, 1975; Wackman and Wartella, 1977), and these suggest age-related differences in response to television products.

McNeal (1964) in a study involving interviews with children ages 5, 7, and 9 found an increasing dislike and mistrust of television ads as the children increased in age. The children who liked the ads thought them entertaining; older children believed the ads to be generally "annoying", "untruthful", "silly", and to take too much time from the program.

Garry (1967) found that preschoolers and primary grade children take what they see on TV as real and that the mass media is particularly influential where children have no other source of information. In a study that investigated whether or not children judge television ads as real, Barcus (1969) found that the "reality" of the ads was negatively correlated with age and IQ but positively correlated with amount of viewing. Lewis (1974) reported that of 208 5th and 6th grade students, 70 percent believed the commercials shown and 47 percent accepted all commercial messages as true.

Some of the most extensive work to date in the cognitive-developmental trends in children's perception of commercials, has been done by Scott Ward and his associates. Blatt, Spencer and Ward (1971) in an attempt to identify cognitive-developmental differences (within a Piagetian paradigm) in children's perceptions, explanations, and judgements of the content and purpose of television commercials, studied a group of 20 white, middle-class kindergarten, second, fourth, and sixth grade children, who were described as slightly above average in intelligence. Their results are summarized below:

Understanding of Intent

Kindergarten:	Confused, limited recognition that ads were intended to sell.
Second Grade:	Clear recognition that advertisements were intended to sell; semi-recognition of advertiser's motives.
Fourth & Sixth Grade:	Clear recognition of purpose of commercials, motives of advertisers, and emerging understanding of the techniques advertisers use in constructing commercials.

Ability to Differentiate Product Being Advertised
From Advertising Message

- Kindergarten: No discrimination between advertisement and product advertised.
- Second Grade: Confusion (can like product, but not like commercial; but confuse product advertised with advertisement).
- Fourth & Sixth Grade: Clear differentiation between advertisement and product advertised.

In a follow-up to this study, Ward, Reale & Levinson (1971) looked at three age groups (5-7, 8-10, and 11-12), from middle and upper middle SES groups. Open-ended questionnaires were used to assess perception of reality and purpose of ads, discrimination between product and advertising, classes of products recalled, complexity of recall, and perceived validity and credibility of advertisements. They found, in general, that older children exhibit higher levels of cognitive development than do younger children. Older children showed a greater awareness of the concept of commercials, greater understanding of their purpose, and distinguished between programs and commercials more readily than could the younger children. Furthermore, older children had a greater complexity of recall and were more suspicious of commercials than younger children. Additional findings were that (1) regardless of age, food advertising ranked highest as both the favorite and least-liked commercials, and (2) explanations for liking or disliking specific commercials revolved around the entertainment value of the commercial.

Ward, Levinson and Wackman (1971) examined watching behavior and commercials in children aged 5-7, 8-10, and 11-12. They found that

children of all ages appear to watch commercials with less attention than the program, but that older children attend less and have more critical reactions to commercial content.

Ferguson (1975) has replicated many of the findings of Ward and his associates. She found that at high levels of cognitive development, attitudes toward commercials tended to be negative, while at low levels, they tended to be more positive. She found that middle levels of cognitive development lacked consistency in the direction of attitudes and she attributed this to the lack of sensitive measuring instruments for the middle ranges of cognitive development.

These studies begin to clarify developmental variables; however, questions remain to be answered regarding specific attitudes, behaviors, and age interactions for understanding the effects on children at different ages.

Effects of Television Advertising on Children's Behavior. Much of the research discussed thus far focuses on viewing habits and perceptions and attitudes of commercials. Little research has yet focused on the extent to which commercials affect actual behavior. Does advertising cause children to attempt to influence parents to buy these products, and do they cause children to eat more of the advertised foods?

Some self-reports of behavior have been accumulated by researchers. Longstreet (1967) asked parents to monitor the number of food purchase influence attempts and the number of times they capitulated to such requests. His parents reported that 70 percent of the children

monitored asked their parents to buy the products in question and 89 percent of the parents responded by making the purchase. A criticism of this research is that self-monitoring often has a reactive effect in the valanced direction; in this case, meaning that parents would be likely to downplay the number of capitulations. (Kazdin, 1974; Romanczyk, 1974).

Ward and Wackman (1977), relying entirely on questionnaire data, found that food products, especially breakfast cereal, snack foods, candy, and soft drinks were requested by children in every age group. Other investigators (Sharaga, 1974; Dusere, 1974) again using questionnaires or interviews have found a relationship between the amount of television a child watched, food preferences, and nutritional knowledge. Children who watched more television reported eating more highly sugared cereals, snack products, and highly advertised foods, and possessed poorer nutritional knowledge and information.

Galst & White (1976) in a frequently cited correlational study with three-to-six-year-olds, found that the number of purchase influence attempts increased with age and that the more television the child viewed, the more purchase influence attempts he made. Their data also replicated earlier investigations with children which indicated that cereal and candy were the most frequently requested and the most heavily advertised food products.

Two well-designed recent studies (Goldberg, Gorn & Gibson, 1978a and 1978b) found that exposure to television messages that were either pro-nutritional or low-nutritional affected verbalized food

preference. Those who viewed commercials for highly sugared foods stated a preference for more sugared foods, and those who viewed pro-nutrition Public Service Announcements chose more fruits and vegetables. Goldberg, et.al. also found that a 24-minute animated program with Bill Cosby and "Fat Albert" extolling the virtues of good food and the dangers of high sugar, high-fat items was effective in reducing the number of sugared foods selected. This research utilized a more innovative self-report measure than has been used to date. Children in these studies were presented with a large piece of cardboard on which was affixed pictures of six foods, three high-nutrition and three low-nutrition. The children were then asked to think about a hypothetical situation where the experimenter was to be their babysitter for the weekend and needed to make a grocery list for the meals they would have. Food selections thus were made relevant by an active imaginal technique; however, this was still somewhat removed from real-life choices.

Summary. Conspicuously absent in the studies to date are experimentally-controlled behavioral measures of food preference and eating habits. Roberts (in press) current comprehensive review of the literature on children and television commercials summarizes the present state of knowledge:

"Although the data are sparse, there we find at least tentative evidence that young persons' behaviors are influenced by television commercials. It must be noted, however, that the nature of these data render the results highly tentative. Parental reports of behavior are likely to be biased and young persons' expressions of product preferences are a large step removed from overt behavior . . . so far, research has been limited to understanding of content, desire for products, and attitudes

toward advertising. Almost the entire area of television commercials' impact on children remains largely uncharted." (Roberts, in press, p. 41)

A recent review of the literature on the effects of television advertising on children, which was sponsored by the National Science Foundation (1977), came to a similar conclusion:

"While various statistics have been cited by parties concerned with the nutritional health of the U. S. populace, including children, no evidence directly links televised food commercials to those statistics since the appropriate studies have not yet been conducted to examine the alleged linkage."

Again, a major weakness of most of the television research is that it relies on the child's self-report or the parent's report about their child's viewing, rather than measuring directly the child's behavior. Additionally, most of the research has been of a survey, non-experimental nature, providing important information about viewing behavior, but not providing direct causal information about the effects of advertising on children's health-related behaviors.

While there has only been a small increase in the understanding of the effects of television commercials on children's behavior, there has been a large increase in debate among various consumer groups, governmental agencies, and advertising sponsors regarding children's commercials. Government officials and various consumer groups are beginning to concern themselves with television advertising for children and some are suggesting the need for regulations.

A vocal consumer group, Action for Children's Television (ACT), has petitioned the Federal Trade Commission to prohibit the advertising of candy to children on television (Action for Children's Television, 1973, 1977). In response to consumer action the FTC has decided to

begin the rule-making processes for possible regulation of children's television advertising (Federal Trade Commission, 1978). A recent conference, sponsored by the National Science Foundation, the Ford Foundation, and the Markle Foundation (Television and Children, 1975), concluded that television has a profound effect on children's development, but that much is still not known about the specific processes and outcomes. Among their recommendations, the conference participants concluded: "The first research priority is the impact of advertising on children. We include not only advertising directed to children but also advertising directed to adults that is likely to be seen by children."

Purpose of the Proposed Study

The previous review has attempted to establish:

- (1) that the current eating habits of Americans constitute a major health risk;
- (2) that eating habits are the product of social learning of food preferences, eating behavior, nutrition information, etc..
- (3) that one of the most potent modes of such social learning is advertising via television; and
- (4) that research to date has added important knowledge about viewing variables, developmental variables, perceptions and attitudes about commercials, and reports about food-related behavior; but it has suffered methodological problems and it has not demonstrated a connection between televised food advertising and actual experimentally-measured behavior change.

The purpose of the present study was largely to provide such experimentally-measured behavioral data in the form of laboratory-controlled

exposure to television commercials and a laboratory-controlled eating measure. This study attempted to investigate the effects of low-nutritional, pro-nutritional and non-food commercials upon the eating behavior and food preference of children. It attempted:

- (1) to obtain experimental evidence about the effects of typical current food commercials on children's food preference and eating behavior.
- (2) to obtain experimental evidence about the effects of pro-nutritional commercials on children's eating habits; and, thereby,
- (3) to provide scientific information for telecommunication and public-policy makers so they may be better informed about the impact of television commercials in developing public policy that is consistent with national health goals.

It was hypothesized that low-nutrition food commercials would increase children's consumption of specifically advertised low-nutrition foods and overall caloric intake. Secondly, it was hypothesized that pro-nutrition commercials would increase consumption of nutritional foods and total calorie intake but to a lesser degree than low-nutrition commercials. This prediction was based on the generally lower budget, lower quality pro-nutrition commercials that are available. Finally, it was hypothesized that toy commercials would have no effect on children's subsequent food choices.

CHAPTER II

METHODS

Subjects

Forty-seven four and five-year-olds (23 boys and 24 girls) were selected from local preschools and randomly assigned to one of three treatment groups. Four and five-year-olds were selected as research has indicated that they watch television a great deal and are considered vulnerable as (a) they still do not understand the motive of commercials, and (b) they cannot discriminate between the advertisement and the product advertised (Blatt, Spencer, and Ward, 1971). The children were selected from the Missoula Head Start program, the University of Montana Preschool, the Associated Students' Preschool, and preschools at St. Paul's Lutheran Church and Prince of Peace Lutheran Church.

Written permission to participate was sought from every parent. (See Appendix A for permission letters.) The return rates varied somewhat at the different schools. At Head Start and the Associated Students' Preschool it was about 33 percent after two contacts, while at the University of Montana Preschool and the churches it was 90-95 percent after the first contact. All children were given the opportunity to decline participation in the investigations. If a child chose not to participate at any time during the actual conduct

of the investigation, that request was acknowledged and the child was returned to the appropriate class. However, only one child declined.

Early research on television viewing and socio-economic status levels initially indicated significant differences between groups. Consequently, SES was examined as a moderator variable in the current study and subjects were awarded socio-economic designations based upon Hollingshead's Two-Factor Index of Social Position (1957) and the information relevant thereto which was provided by parents.

Design

A pre-test/post-test control group design with three groups was utilized. Children were randomly assigned to one of the three groups, which consisted of (a) low-nutrition commercials; (b) pro-nutrition commercials; and (c) non-food commercials. The independent variable was thus the kind of advertising the children were shown. The dependent measurement consisted of a behavioral eating test (BET) and a food preference scale (FPS), administered prior to and following the experimental manipulation. This design allowed for analyses of changes within groups as well as differences between groups.

Apparatus

The study was run, in part, in a standard 25-foot mobile home which had been divided into two sections--the kitchen, where the food was prepared, and the experimental room. Subjects entered through the back door and were directed through the kitchen to the experimental room. In this area, they were administered pre and post

assessment, as well as the experimental manipulation. Half of the subjects were run in two identical experimental rooms in the Psychology Building. These rooms were furnished in much the same way as the trailer and the procedure was identical except that the subject was walked across the hall to the other experimental room for the experimental manipulation.

Materials for the behavioral eating test included a portable refrigerator, a gram scale, 12 round, transparent plastic one-half pint food containers, a supply of disposable plastic cups, and assorted foodstuffs, and a specially constructed plastic tray, with 12 compartments for the foods and beverages and slots for labels of the foods.

A black and white one-half inch videotape recorder with 17-inch television monitor was used to show the television commercials and program. Access to the above equipment, as well as to videotape editing facilities, was provided by University of Montana Instructional Materials.

Procedure

From start to finish, the procedure was as follows:

1. Children were brought to the experimental room for the pre-treatment taste test. They were given a tray of food and instructed to taste the different foods to see which was liked best. After tasting the foods, they were asked a few questions about food and gave ratings of the foods on the taste test on a food preference scale.

2. One week later a second experimental contact was made, consisting of:
 - a. exposure to the experimental condition, 30-second commercials embedded in segments of typical children's television programming.
 - b. a second taste test.
 - c. a post-treatment interview, consisting of the food preference scale and questions from the pre-treatment interview plus an assessment of reaction to the television ads and programming.

Children were individually taken from their classes and brought to the experimental rooms by a confederate. In order to control for hunger, the children were tested during mid-afternoon or mid-morning for both the pre-test and post-test assessments. The child was told that he/she had been asked to participate in a study to see what kinds of foods kids like to eat. Specific steps in this procedure are explained in detail below.

Behavioral Eating Test (BET)

The pre- and post-treatment BETS proceeded in a similar manner, as follows. The experimenter presented the child with a tray of food and beverages. The tray contained an equal number of low and high nutrition foods and beverages, equated for volume or cut into bite-sized pieces. Some of the foods were those advertised in the experimental manipulation and some were not. Low-nutrition foods and beverages were: Hershey bars, Frito's Corn Chips, Chips-Ahoy Chocolate

Chip cookies, Honeycombs cereal, Coke, and cherry Kool-Aid. High-nutrition foods and beverages were: cheese, carrots, grapes, apples, milk, and orange juice. The foods and beverages sat in partitioned compartments in the tray, with small photos of the food in slots in front of the containers. The pictures were intended to aid the child in identifying the cut-up foods.

As the experimenter presented the tray of food to the child, she said:

"We are trying to find out what kids think of different kinds of 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 so you can tell me what you think of them. You can eat as much of anything as you want. If there are foods you don't like, you don't need to eat them. Right now I have to go in the other room for a few minutes. But when I come back, I will ask you to tell me what you thought of the things you just ate or drank. If you have any questions while eating the foods, just knock on the door and I'll return to help you. Do you have any questions? (Experimenter answered any questions.) Okay, remember you can eat as much as you like. Go ahead, begin."

After this statement, the experimenter left the room. The child was left in the room alone for 8 minutes to eat the food. Several children indicated a desire to talk to the experimenter during the BET. When this occurred, the experimenter returned to the eating area and encouraged the child to continue tasting foods, stating that she would return in a few minutes. At the end of eight minutes, the experimenter returned to the tasting room, looked at the tray and said:

"Well, it looks like you've tasted a few of these foods. I wonder if you could tell me what you thought of them."

She removed the tray to the 'kitchen' so the foods could be weighed and measured, and then proceeded with the treatment interview. The pre- and post-treatment interview are explained in a subsequent section. See Appendix for the specific questions. When the questions were completed, the experimenter thanked the child for participating, saying:

"Well, (name), you've tasted some foods here and answered some questions and helped me to understand better what kinds of foods kids like to eat. Thank you very much for helping me out. (Confederate) will take you back to your class now."

One week later, the child was brought to the experimental rooms again. This time the experimenter said to the child:

"Remember last time you were here I asked you to taste some different foods? Well, you did such a good job that I would like you to do the same thing again today. Right now I have to go in the other room and get the foods ready for you. While I'm gone, you can watch TV (switching the set on). I shouldn't be too long, so just sit back, watch, and enjoy yourself until I come back. If you need me while you're watching TV, just knock on the door and I will come out. Do you have any questions? (Experimenter answered any questions, and then left the room.)

After the 12-minute experimental manipulation (described in more detail below), the experimenter returned and said:

"Remember last time you were here you helped us learn what kinds of foods kids like. Today we would like you to do that again. In front of you are a number of . . . (and repeated same instructions from the pre-test).

Again, the child was left alone for 8 minutes. The remainder of the procedure was the same as for the pre-test, except that the post-treatment interview was administered.

The grams of food consumed were calculated by measuring on a gram scale the weight of the food before the BET and then subtracting the weight of the remaining food after the BET. The volume of beverages consumed was calculated by subtracting from the original amount placed in the containers that which remained at the conclusion of the taste test. Caloric content was determined from standard food-value tables (Mayer, 1968). In all cases reliability checks were conducted on every third subject. The experimenter independently weighed and measured tray items and compared her findings to the laboratory assistant's.

Experimental Manipulation

The experimental variable in question in this study is the kind of advertising viewed. There were three experimental conditions:

- 1) commercials for low-nutrition, high-caloric food*
- 2) commercials for nutritious low-caloric food
- 3) commercials for non-food items (i.e., toys)

The various commercials were embedded in a 7-1/2 minute segment of typical children's Saturday morning-type programming. The Pink Panther Comedy Show was selected for it's appeal to children of the subject's ages, its medium rather than low or high arousal level (based on research findings that commercials receive more attention in programs with medium arousal level) (Kennedy, 1971), and the convenient spacing, for editing purposes, of breaks in the program.

Three 30-second commercials per experimental condition were edited into the program, as follows:

*Low-nutrition group will hereinafter be referred to as group 1; pro-nutrition group as group 2; and toy group as group 3.

1. Low-nutrition, high calorie:
 - 1 ad for Pepsi*
 - 1 ad for Fritos corn chips
 - 1 ad for Hershey bars
2. Pro-nutrition:
 - 1 ad for grapes
 - 1 ad for milk
 - 1 ad for cheese
3. Toys (non-food):
 - 1 ad for the 'Close and Play' Record Player
 - 1 ad for a Leggo building set
 - 1 ad for a Spectograph drawing set

Within the 7-1/2 minute program, each of the three ads were shown twice; that is, there were three commercial breaks, each of which featured two 30-second ads. For example, in the low nutrition condition, the order was as follows:

First commercial break:	one ad for Pepsi and one for Hershey bars
Second break:	one ad for Fritos and one for Pepsi
Third break:	one ad for Hershey bars and one for Fritos

There was one exception to this. The commercial for cheese was 60 seconds and it was shown only once.

The three experimental program segments with commercials were edited from television and 16 mm advertising clips into one 1/2-inch reel-to-reel black and white videotape. There was an attempt to equate all commercials for length (30 seconds), appeal, and production quality. The degree of equality was assessed by a panel of independent judges. The judges were recruited from a University of Montana Radio

*Verbatim transcripts of ads across conditions appear in Appendix L.

and Television Department class in television production. All judges had considerable experience making and evaluating videotape productions. In a group session each judge was asked to read the instructions on the rating form (Appendix J), to view each condition, and then rate the commercials in the condition on the dimensions "visual interest," "auditory interest," "product appeal," and "technical quality." Ratings were on a 7-point scale with '1' representing a low amount of the dimension and a '7' a high amount. This yielded for each judge an individual rating for each experimental condition on each dimension.

The experimental manipulation was introduced as described previously in the section on the Behavioral Eating Test.

Pre- and Post-Treatment Interview

Following each BET an interview was conducted to assess the child's reaction to the foods and, after the second BET, to the television programming.

The pre-treatment interview consisted of a number of questions about favorite foods, foods eaten at home, etc., as well as a Food Preference Scale rating of foods on the BET, which was patterned after a Likert or Osgood Semantic Differential evaluative scale. For the Food Preference Scale (FPS) the following procedure was used:

The experimenter put before the child a cardboard poster with six different evaluative facial expressions. She then said,

"See these faces? We can use them to help us find out just how much you like different things. (Pointing to each face, one at a time) This is the happiest face. It means you like something a whole lot. (Next face) If you pick this face, it means you like something pretty much. (Next face) If you pick this face, it means you like something just a

little bit. (Other end of the scale) This is the saddest face. If you pick it, it means you don't like it at all. (Next nearest face) If you pick this face, it means you don't like it very much. (Next face) If you pick this face, it means you don't like it, but don't like it only a little bit."

She then gave the child some examples to rate and waited to proceed until the child appeared to understand the rating procedure. She then said,

"Now, (name) , I'm going to show you pictures, one at a time of the foods that were on the tray and I'd like you to point to the face which shows me how you feel about the food."

The experimenter held up photographs of the food. As the child pointed to a face on the poster, she marked his/her choice on the FPS Summary (Appendix B). She then proceeded with the rest of the questions in the pre-treatment interview (Appendix C).

Following the conclusion of the second BET, a post-treatment interview was administered. It repeated questions from the pre-treatment interview and the FPS procedure. In addition, it assessed (a) recall and reaction to the television program; (b) general television viewing habits; and (c) awareness of the real purpose of the study. (See Appendix D, Post-Treatment Interview, for the content of the questions.)

CHAPTER III

RESULTS

Inter-rater reliability in the counting, weighing, and measuring of the items on the behavioral eating test was calculated on approximately 34% of the subjects on a random basis. Comparison of the results of the laboratory assistant and a second observer yielded a mean percent agreement of 96.3 with a range of 91.6 to 100%. This was calculated by the formula:
$$\frac{\text{No of agreements}}{\text{No of disagreements plus agreements}} \times 100.$$

The Behavioral Eating Test (BET) and Food Preference Scale (FPS) yielded a considerable amount of data. The means and standard deviations for the twelve foods and beverages for the BET and FPS are presented in Tables 1 and 2 respectively.

To increase the understanding and generality of the data, the specific food scores were combined to yield total scores. For example, "Total Calories" was calculated from the grams of food and milliliters of beverage consumed. Calories per gram and per milliliter were derived from standard food value tables and totaled for each subject for pretest and posttest.

Following is a list of the combined variables employed. It should be noted that these variables are not necessarily independent.

Table 1

Means and Standard Deviations for Specific Foods in
Total Calories Across Pretest and Posttest

		<u>Pretest</u>		<u>Posttest</u>		<u>Mean Difference</u>
		<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>	
1. Hersheys	Low-N	68.062	75.891	107.875	79.163	+ 39.813
	Pro-N	87.400	102.083	112.400	86.023	+ 25.000
	Toy	126.875	97.294	141.063	86.173	+ 14.188
2. Fritos	Low-N	13.187	16.096	20.687	19.838	+ 7.500
	Pro-N	15.466	19.361	14.333	22.205	- 1.134
	Toy	6.937	12.107	7.687	9.400	+ .750
3. Pepsi	Low-N	6.813	9.304	11.875	10.346	+ 5.063
	Pro-N	9.400	12.420	18.800	20.782	+ 9.400
	Toy	14.813	18.982	14.687	18.150	- .125
4. Chips Ahoy	Low-N	13.187	16.097	7.813	8.304	- 5.374
	Pro-N	17.533	23.781	19.933	22.014	+ 2.397
	Toy	19.875	17.362	30.750	31.978	+ 10.875
5. Honeycomb	Low-N	5.875	8.205	6.125	5.714	+ .250
	Pro-N	4.800	4.586	8.467	6.266	+ 3.667
	Toy	5.500	4.590	7.625	10.582	+ 2.125
6. Kool-Aid	Low-N	8.063	9.190	14.937	15.229	+ 6.874
	Pro-N	13.533	14.667	20.867	19.171	+ 7.334
	Toy	7.875	9.851	12.063	18.339	+ 4.188
7. Grapes	Low-N	5.000	7.840	4.187	7.820	- .813
	Pro-N	3.070	2.890	2.400	2.354	- .667
	Toy	4.000	5.703	1.813	2.762	- 2.188
8. Cheese	Low-N	8.250	8.194	21.250	33.008	+ 13.000
	Pro-N	16.276	15.002	14.133	15.918	- 2.134
	Toy	8.500	12.554	7.750	8.575	- 0.750
9. Milk	Low-N	3.375	4.828	10.625	17.610	+ 7.250
	Pro-N	6.866	8.782	8.800	17.664	+ 1.933
	Toy	11.120	24.044	7.687	17.647	- 3.440
10. Carrots	Low-N	.500	.816	0.687	1.537	+ .187
	Pro-N	.733	1.099	0.467	.743	- .266
	Toy	.687	.946	0.500	.817	- .187

Table 1 Continued

		<u>Pretest</u>		<u>Posttest</u>		<u>Mean Difference</u>
		<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>	
11. Apples	Low-N	.937	1.769	1.000	1.788	+ .063
	Pro-N	1.600	2.324	2.933	3.770	+ 1.333
	Toy	3.188	2.903	3.438	3.483	+ .250
12. Orange Juice	Low-N	6.187	9.232	7.187	8.216	+ 1.000
	Pro-N	5.667	7.788	3.267	5.910	- 2.400
	Toy	3.437	9.187	4.375	7.347	+ .938

Table 2

Means and Standard Deviations for the Food Preference
Scale Across Pretest and Posttest

	Group	<u>Pretest</u>		<u>Posttest</u>		<u>Mean Difference</u>
		<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>	
1. Hershey	Low-N	5.563	.892	5.688	.602	+ .125
	Pro-N	5.467	.743	5.800	.414	+ .333
	Toy	5.000	1.461	5.375	.806	+ .375
2. Fritos	Low-N	4.938	1.124	5.438	.892	+ .500
	Pro-N	4.467	1.767	4.933	1.335	+ .466
	Toy	5.188	1.047	5.375	1.025	+ .187
3. Pepsi	Low-N	5.188	1.328	5.125	1.408	- .063
	Pro-N	5.000	1.000	5.133	1.125	+ .133
	Toy	5.688	.602	5.563	.629	- .037
4. Chips Ahoy	Low-N	4.313	1.702	4.375	2.156	+ .062
	Pro-N	5.133	1.187	4.867	1.506	- .266
	Toy	5.250	1.125	5.563	0.629	.313
5. Honeycombs	Low-N	5.125	1.088	4.938	1.340	- .187
	Pro-N	4.933	1.335	5.000	1.464	+ .067
	Toy	5.000	1.155	4.625	1.628	- .375
6. Kool-Aid	Low-N	4.750	1.528	5.063	1.181	+ .313
	Pro-N	4.533	1.642	5.467	0.743	+ .934
	Toy	4.688	1.621	5.188	1.559	.500
7. Grapes	Low-N	4.938	1.690	5.063	1.181	+ .125
	Pro-N	4.800	1.781	4.467	1.885	- .333
	Toy	4.625	1.544	3.938	2.016	- .687
8. Cheese	Low-N	4.563	1.320	4.438	1.711	- .125
	Pro-N	3.933	2.154	4.000	2.070	+ .100
	Toy	4.250	1.483	4.813	1.471	+ .563
9. Milk	Low-N	4.875	1.204	5.063	1.389	+ .188
	Pro-N	5.000	1.464	4.667	1.759	- .333
	Toy	4.250	1.612	4.250	1.770	0.000
10. Carrots	Low-N	4.375	1.708	4.125	1.628	- .250
	Pro-N	4.333	1.718	3.867	1.995	- .466
	Toy	4.688	1.580	4.438	2.065	- .250

Table 2 Continued

	<u>Group</u>	<u>Pretest</u>		<u>Posttest</u>		<u>Mean Difference</u>
		<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>	
11. Apples	Low-N	4.813	1.682	4.813	1.721	.000
	Pro-N	5.200	1.424	4.933	1.387	- .267
	Toy	4.313	1.662	4.750	1.390	+ .437
12. Orange Juice	Low-N	4.250	1.807	4.750	1.732	+ .500
	Pro-N	4.267	1.870	4.333	1.718	+ .066
	Toy	4.500	1.789	4.438	1.413	- .062

1. Total calories--food
2. Total calories--beverages
3. Total calories--foods and beverages
4. Total grams
5. Total milliliters
6. Total food preference score, foods and beverages

The means and standard deviations for the combined variables are presented in Table 3. Much of the subsequent statistical analyses will be presented in terms of these combined variables. Particular emphasis will be given to the combined variables Total Calories (food and beverages) and Total Food Preference Scores (food and beverages), since these are the most informative of the combined variables.

To begin with, there was considerable intersubject variability. Standard deviations for the combined variables (Table 3) were large. For example, for Total Calories, combined pretest means were 137.88, 182.33, and 212.81 for groups 1, 2, and 3, respectively, and standard deviations were 109.181, 120.964, and 133.095, respectively. To determine whether the pretest means for Total Calories were statistically different, an analysis of variance was conducted; there was no significant difference at the .05 level.

Between Group Differences

Repeated measures analyses of variance were calculated to test for between and within group differences (Table 4). To help correct for large intersubject variability and possible non-normality, a square-root transformation was performed on the combined variables. The analyses of variance were then conducted on the transformed data.

The between groups analysis failed to exhibit significance on any of the combined variables (Table 4). The probabilities of the between

Table 3

Means and Standard Deviations for Combined Variables on Pretest
 Posttest and Pre-Post Differences
 Groups I (Low-Nutrition), II (Pro-Nutrition), and III (Toys)

	Group	Pretest		Posttest		Mean Difference
		Mean	Standard Deviation	Mean	Standard Deviation	
1. Total Calories Food	Low-N	113.440	99.850	169.630	96.030	+56.190
	Pro-N	146.870	103.430	175.070	100.960	+28.200
	Toys	175.560	116.660	200.620	83.280	+25.000
2. Total Calories Beverages	Low-N	24.440	21.820	44.630	38.190	+20.190
	Pro-N	35.470	28.560	51.730	31.550	+16.260
	Toys	37.250	53.290	38.810	52.390	+ 1.560
3. Total Calories Combined	Low-N	137.880	109.181	214.250	101.911	+76.380
	Pro-N	182.330	120.964	226.800	117.398	+44.470
	Toys	212.810	133.095	239.440	103.167	+26.630
4. Total Grams	Low-N	36.310	31.278	46.500	28.967	+10.190
	Pro-N	40.930	25.331	46.670	23.533	+ 5.730
	Toys	50.810	35.448	51.310	19.043	+ 0.500
5. Total Milliliters	Low-N	54.130	48.659	96.130	69.425	+42.000
	Pro-N	77.400	61.539	115.070	68.511	+37.670
	Toys	78.810	108.261	84.940	111.136	+ 6.130
6. Total Food Preference Score (Comb.)	Low-N	57.69	10.550	58.880	11.413	+ 1.190
	Pro-N	57.07	11.707	57.470	10.850	+ 0.400
	Toys	57.00	8.579	58.310	7.300	+ 0.870

Table 4

Analyses of Variance With Repeated Measures for the
Low-Nutrition, Pro-Nutrition and
Non-Food Advertising Groups

<u>Combined Variables</u>	<u>Source</u>	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>Probability</u>
1. Total Calories Foods	A	76.919	38.460	2	1.249	0.296
	J	84.993	84.993	44	9.754	0.003**
	AJ	19.501	9.751	88	1.119	0.336
2. Total Calories Beverages	A	20.308	10.154	2	0.599	0.559
	J	34.222	34.222	44	8.123	0.007**
	AJ	10.650	5.325	88	1.264	0.292
3. Total Calories Combined	A	74.072	37.036	2	1.107	0.340
	J	123.990	123.988	44	14.994	0.001***
	AJ	27.794	13.897	88	1.681	0.196
4. Total Grams	A	15.095	7.548	2	0.966	0.609
	J	9.997	9.997	44	4.350	0.040*
	AJ	3.377	1.689	88	0.735	0.510
5. Total Milliliters	A	49.217	24.608	2	0.684	0.514
	J	77.428	77.428	44	8.411	0.006**
	AJ	20.843	10.422	88	1.132	0.332
6. Total Food Preference Score (Food and Beverages)	A	16.090	8.045	2	0.044	0.957
	J	16.181	16.181	44	0.726	0.596
	AJ	2.425	1.213	88	0.054	0.946

Note: Conducted on the square root transformed data

* $\underline{p} < 0.05$

** $\underline{p} < 0.01$

groups analysis ranged from .079 (a strong trend) to .76 (obviously not significant). A major problem with the between groups analyses was the very large standard deviations. There were also no significant interaction effects.

Within Group Differences

Within-group (i.e., pre-post changes) effects were significant at the $\alpha = .05$ or $.01$ levels for five variables.

Pre-post changes were also analyzed for significance by group; that is, within-group effects were broken down by group to determine whether there was a differential contribution to the significant effect. Matched groups t tests were calculated for groups 1, 2, and 3 on the six combined variables (Table 5). It is noteworthy that significant pre-post changes for group 1 were in the predicted direction for four combined variables, whereas changes for group 2 were significant only for two variables and the pre-post changes for group 3 were not significant on any of the variables.

Analyses of Specifically Advertised Foods

Additional analyses were conducted for specific advertised foods (See Table 1 for means and standard deviations for specific foods). Repeated measures analyses of variance were conducted on the variable Total Calories (Table 6). This variable was selected because it appeared to be the best common measure for foods and beverages. While it may be argued that low-nutrition foods are often high in calories and that an increase in calories per se does not suggest conclusively a preference for low-nutrition food, it is true that obesity results from an excessive

Table 5

Matched Group t Tests for Pre-Post Mean Changes
for Six Combined Variables

	<u>Groups</u>	<u>Mean Difference</u>	<u>t</u>
1. Total Calories (Food)	Low-Nutrition	56.19	2.419*
	Pro-Nutrition	28.20	1.256
	Toy	25.06	.918
2. Total Calories (Beverages)	Low-Nutrition	20.19	2.670*
	Pro-Nutrition	16.26	2.360*
	Toy	1.56	.143
3. Total Calories (Combined)	Low-Nutrition	76.38	3.384**
	Pro-Nutrition	44.47	1.693
	Toy	26.63	1.064
4. Total Grams	Low-Nutrition	10.19	1.696
	Pro-Nutrition	5.73	.801
	Toy	.50	.073
5. Total Milliliters	Low-Nutrition	42.00	2.700*
	Pro-Nutrition	37.67	2.520*
	Toy	6.13	.273
6. Total Food Pref. Score (Combined)	Low-Nutrition	1.19	1.102
	Pro-Nutrition	.40	.244
	Toy	.87	.415

* $p < .05$.

** $p < .01$.

Table 6

Repeated Measures Analyses of Variance on Total
Calories for Specific Advertised Foods

	<u>Source</u>	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>Prob.</u>
1. Hersheys	A ^a	36358.5000	18179.2000	2	1.474	0.23896
	J ^b	16331.1000	16331.1000	1	5.115	0.02704*
	AJ	2646.9900	1323.4900	2	0.414	0.66874
2. Fritos	A	1639.5400	819.7700	2	1.626	0.20684
	J	140.6910	140.6910	1	1.889	0.17307
	AJ	323.4420	161.7210	2	2.171	0.12423
3. Pepsi	A	553.7410	276.8700	2	0.733	0.50972
	J	514.8940	514.8940	1	4.676	0.03396*
	AJ	352.9630	176.4810	2	1.603	0.21139
4. Grapes	A	66.6746	33.3373	2	0.617	0.54894
	J	35.7872	35.7872	1	6.101	0.01658*
	AJ	11.1086	5.5543	2	0.947	0.60207
5. Cheese	A	991.4020	495.7010	2	1.351	0.26878
	J	286.1280	286.1280	1	1.107	0.29878
	AJ	1104.5100	552.5230	2	2.137	0.12818
6. Milk	A	95.4337	47.7169	2	0.124	0.88321
	J	86.1702	86.1702	1	0.549	0.53069
	AJ	456.8940	228.4470	2	1.455	0.24324

^aA = Groups

^bJ = Pretest, posttest

* $p < .05$.

intake of calories and that an increase in calories alone regardless of the nutritional value of the food, is important.

The analyses indicated significant within groups (pre-post) effects for Pepsi, Hersheys and grapes. As with the combined variables, these pre-post changes were further analyzed by group to determine if there were group differences. Matched groups t tests were utilized to test for pre-post changes within a group. Results appear in Table 7. For two of the low-nutrition foods (Hersheys and Fritos) results were in the predicted direction. For Hersheys, mean differences in Total Calories for groups 1, 2, and 3 were +39.81, +25.00, and +14.18, respectively. The difference for group 1 was significant, while that for groups 2 and 3 were not. Similar results were obtained for Fritos. For Pepsi, it appears that results were in the opposite direction predicted. Group 2 increased their consumption significantly while groups 1 and 3 did not. Pro-nutritional advertising did not appear to have a significant effect. Repeated measures analysis of variance again suggested no significant between-groups effect or interactions.

The Food Preference Scores for the advertised foods were also analyzed (Appendix, Table 8). Analyses of variance performed on the three foods for which BET scores achieved significance failed to demonstrate any consistent significant between, within, or interaction effects.

Individual Variables

Supplementary analyses were conducted to determine if part of the initial variability of subjects was due to sex or socioeconomic differences.

Table 7

Matched Groups t Test for Pre-Post Mean Changes
on Total Calories for Specific
Advertised Foods

	<u>Group</u>	<u>Mean Difference</u>	<u>t</u>
1. Hersheys	Low-Nutrition	+ 39.813	2.63*
	Pro-Nutrition	+ 25.000	1.47
	Toys	+ 14.188	.54
2. Fritos	Low-Nutrition	+ 7.500	2.16*
	Pro-Nutrition	- 1.134	.31
	Toys	+ .750	.40
3. Pepsi	Low-Nutrition	+ 5.063	1.76
	Pro-Nutrition	+ 9.400	2.29*
	Toys	- .125	.03
4. Grapes	Low-Nutrition	- .813	1.37
	Pro-Nutrition	- .667	.88
	Toys	- 2.188	1.92
5. Cheese	Low Nutrition	+ 13.000	1.55
	Pro Nutrition	+ 2.134	.52
	Toys	- .750	.25
6. Milk	Low Nutrition	+ 7.250	1.67
	Pro Nutrition	+ 1.933	.44
	Toys	- 3.440	.74

* p < .05.

Sex differences. The means and standard deviations by sex for the four main combined variables for pretest and posttest are presented in Table 9. In almost all instances on the pretest for Total Calories, Total Grams, and Total Milliliters, boys consumed more than girls. For example, on Total Calories in group 1, the mean for boys was 154.125, while for girls it was 69.750. For group 2 the mean for boys was 175.714 while for girls it was 120.75.

The tendency for boys to consume more was apparant on the posttest as well. For example, with group 1, the Total Calories mean for boys was 179.0 and for girls 160.250; and with group 2, the boys' mean was 239.143, while that for girls was 119.0.

Pretest and posttest sex differences were statistically analyzed to determine if they were significant. For the pretest the experimental groups were combined, since they had not yet been exposed to any treatment, and then analyzed by sex. Results appear in Table 10. One-way analyses of variance for Total Calories, Total Grams, Total Milliliters, and Total Food Preference Score showed significant differences between sexes for Total Calories and Total Milliliters.

Post-hoc analyses (t tests) were performed on the posttest scores by sex and group to determine if the treatment had a differential effect depending on sex. Results appear in Table 11. Significant (at the .05 level) differences between sexes were found only for group 2 for Total Calories and Total Grams.

Table 9

Means and Standard Deviations for Sex Differences
Across Pre- and Posttest

	<u>Group</u>	<u>n</u>	<u>Sex</u>	<u>Pretest</u>		<u>Posttest</u>	
				<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>
<u>Total Calories</u>	Low-N	16	Male	154.125	112.862	179.000	89.813
			Female	69.750	24.617	160.250	107.211
	Pro-N	15	Male	175.714	121.293	239.143	98.140
			Female	120.750	84.346	119.000	66.580
	Toy	16	Male	197.000	94.507	218.500	52.307
			Female	154.125	138.502	182.750	106.744
<u>Total Grams</u>	Low-N	16	Male	42.625	28.369	41.375	20.894
			Female	30.000	34.649	51.625	36.075
	Pro-N	15	Male	42.256	28.347	60.143	22.748
			Female	39.750	24.312	34.875	17.988
	Toy	16	Male	54.125	22.906	53.375	12.626
			Female	47.500	46.290	49.250	24.656
<u>Total Milliliters</u>	Low-N	16	Male	57.500	46.090	82.625	55.451
			Female	50.750	54.063	109.625	100.131
	Pro-N	15	Male	100.714	68.777	147.286	64.046
			Female	57.000	50.005	85.875	62.652
	Toy	16	Male	141.375	125.837	131.875	143.236
			Female	16.250	18.274	38.000	30.242
<u>Total Food Preference Score</u>	Low-N	16	Male	37.250	6.880	37.000	9.000
			Female	40.000	6.840	40.750	7.686
	Pro-N	15	Male	39.857	6.790	38.857	7.175
			Female	36.875	8.670	37.000	8.734
	Toy	16	Male	40.375	4.920	40.125	4.734
			Female	36.250	7.106	37.600	6.232

Table 10

One-way Analyses of Variance on Pretest Scores
for Sex Differences^a

<u>One-Way Analysis of Variance:</u>		<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>Prob.</u>
Total Calories	A	45,265.40	45,265.40	1	4.164	0.0445*
Total Grams	A	649.83	649.83	1	0.671	0.5575
Total Milliliters	A	40,183.30	40,183.30	1	7.853	0.0074**
Total Food Preference Score	A	20.99	29.99	1	0.202	0.6595

^aSubjects in all three groups were first combined into one group and then divided into groups of males (N = 23) and females (N = 24).

* $\underline{p} < .05$

** $\underline{p} < .01$

Table 11

Significance of Sex Differences on Post-Test

		<u>Male-Female Difference</u> ^a	<u>t</u>
<u>Total Calories</u>	Low-Nutrition ^b	+18.750	.354
	Pro-Nutrition	+120.143	2.612*
	Toy	+35.750	.795
<u>Total Grams</u>	Low-Nutrition	-10.250	.650
	Pro-Nutrition	+25.268	2.230*
	Toy	+ 4.125	.394
<u>Total Milliliters</u>	Low-Nutrition	-27.000	.624
	Pr-Nutrition	+61.411	1.740
	Toy	+93.875	1.696
<u>Total Food Preference Score</u>	Low-Nutrition	-3.750	.839
	Pro-Nutrition	+1.857	.415
	Toy	+2.525	.854

^aA positive score means more food was consumed by boys than girls

^b_n for males and females was 8 except for males in group 2, which numbered 7.

*p < .05.

There seemed to be no consistent sex differences in the effect of the experimental treatment. For group 1, girls' consumption in calories, grams and milliliters rose more sharply than boys (e.g., for Total Calories, mean differences of +24.87 for boys but +90.50 for girls). However, for group 2 in calories and grams, boys' consumption appeared to have increased while that for girls decreased (e.g., for Total Calories, mean differences of +63.43 for boys but -1.75 for girls). And in group 3 changes for each sex appeared to be about the same (for Total Calories, mean differences of +21.5 for boys and +28.62 for girls).

Socioeconomic differences. Means and standard deviations by SES for all children combined for the pretest for the four main combined variables appear in Table 12. An analysis of variance conducted on SES levels revealed a significant difference between SES levels for Total Milliliters and for Total Food Preference Score (Table 13).

As with sex differences, posttest scores were also analyzed to determine if there were differences in treatment effects between SES groups. Means and standard deviations by socioeconomic group for Total Calories and Total Milliliters appear in Table 14. Each posttest SES mean was compared with every other mean by group (except where $n < 2$) by means of individual t tests. For example, for total calories in the pro-nutrition condition, comparisons were made between levels 3 & 4, 3 & 5, and 4 & 5. The tests failed to find significance for any of the SES comparisons, suggesting no significant treatment by SES group interaction.

Table 12

Means and Standard Deviations by Socioeconomic Difference
for all Children Combined on the Pretest^a

	SES <u>Level</u>	<u>n</u>	<u>Mean</u>	<u>sd.</u>
1. Total Calories	(1)	3	256.67	112.877
	(2)	5	130.00	96.039
	(3)	19	199.00	137.481
	(4)	13	133.076	90.566
	(5)	7	202.143	144.339
2. Total Grams	(1)	3	38.333	10.263
	(2)	5	37.400	28.343
	(3)	19	50.434	39.043
	(4)	13	31.769	20.705
	(5)	7	47.714	29.375
3. Total Milliliters	(1)	3	225.667	156.404
	(2)	5	36.200	38.213
	(3)	19	67.105	66.841
	(4)	13	51.385	39.734
	(5)	7	69.571	74.426
4. Total Food Preference Score	(1)	3	60.333	10.408
	(2)	5	52.600	10.714
	(3)	19	61.053	9.294
	(4)	13	57.846	9.582
	(5)	7	46.857	8.707

^aSubjects in all three groups were first combined into one group and then divided into groups by socioeconomic status, using Hollingshead's five-factor index. For level designations, see Appendix G.

Table 13

One-Way Analyses of Variance on Pretest Scores
for Socioeconomic Level^a

	<u>Source</u>	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>Prob.</u>
Total Calories	A	35,110.00	8,777.50	4	0.738	0.57
Total Grams	A	3,075.06	768.76	4	0.784	0.54
Total Milliliters	A	83,073.90	20,768.50	4	4.660	0.00**
Total Food Preference Score	A	907.96	226.99	4	2.520	0.05*

^aSubjects in all three groups were first combined into one group and then divided into groups by socioeconomic status, using Hollingshead's five-factor index.

*p < .05.

**p < .01.

Table 14

Means and Standard Deviations on Posttest
for Socioeconomic Levels^a

	<u>SES Level</u>	<u>n</u>	<u>Mean</u>	<u>Standard Deviation</u>
<u>Total Calories</u>				
Group 1	1	1	-	-
Low-Nutrition	2	1	-	-
	3	8	215.25	104.876
	4	6	140.00	65.915
	5	0		
Group 2	1	1	-	-
Pro-Nutrition	2	0	-	-
	3	5	144.80	86.860
	4	4	127.00	79.619
	5	5	241.20	120.055
Group 3	1	1	-	-
Toy	2	4	226.00	115.939
	3	5	184.80	37.212
	4	3	222.67	6.110
	5	2	104.50	143.543
<u>Total Milliliters</u>				
Group 1	1	1	-	-
Low-Nutrition	2	1	-	-
	3	8	65.12	64.106
	4	6	116.67	63.670
	5	0		
Group 2	1	1	-	-
Pro-Nutrition	2	0	-	-
	3	5	100.0	89.864
	4	4	103.0	70.000
	5	5	124.0	51.481
Group 3	1	1	-	-
(Toy)	2	4	79.75	42.382
	3	5	107.40	165.358
	4	3	42.00	70.164
	5	2	40.00	38.184

^aFor level designations, see Appendix G.

Correlation Between Behavioral Eating Test and Self-Report Food Preference Scale

The relationship between the BET and the self-report FPS was also examined. Correlations for Total Calories and the FPS scale on the pretest and the posttest are shown in Table 16. Correlations range from +.01 to +.35. There appear to be no consistent patterns to these correlations.

Interview Data

The presentation of the questionnaire data will be ordered by subtopics (See Appendices H and I for specific questions and responses.)

Television viewing. Approximately 95% of the children studied had television sets. This figure is similar to the national statistics (Schram, Lyle, and Parker, 1961). The children in the current study reported watching television frequently--at least two times a week. Forty-nine percent said they watch TV every day, while 27.7 reported they watch TV every other day, and 21.3 percent reported they watch TV two times a week.

Understanding the purpose of commercials. It appeared that few of the children in this study understood what a commercial was or was designed to do. Only 6.5% were able to define "commercial" correctly; 72.3% said they didn't know, and 14.9% attempted a definition but were incorrect. There was a similar breakdown for understanding the difference between a commercial and a program.

Effects of commercials on cognitive processes. Roughly 47% of the subjects said they remembered the commercials. It appeared that

Table 16

Correlations Between the Behavioral Eating Test
(Total Calories) and the Self-Report
Food Preference Scale

Group 1		
Low-Nutrition	Pretest	+.13
	Post-Test	+.01
Group 2		
Pro-Nutrition	Pretest	+.35
	Post-Test	+.27
Group 3		
Toys	Pretest	+.18
	Post-Test	+.10

somewhat less than this actually did so. In group 1, 31.3% correctly identified at least one advertised item; in group 2 only 6.75% did; and in group 3, 25.1 remembered at least one item. The percentage of children who correctly identified two items from the commercials were 31.3, 0.0, and 12.5 for groups 1, 2, and 3, respectively. These comparisons offer some suggestive data on the respective impact of different types of advertising.

As for ability to describe what happened in the commercials, only 6.3% could accurately describe at least one commercial in group 1. None of the children in the other conditions were able to do this.

When asked if they thought they saw any food items from the tray on the television sequence, in group 1, 31.3% said they saw these foods in the television program, compared to 20% and 6.3% in groups 2 and 3 respectively. It is interesting that 6.3% of the children in group 3 (no food advertising) thought they had seen food advertised in the experimental segment.

Nutrition knowledge. In general, children seemed familiar with the food on the Behavioral Eating Test. Only 21.3% stated they didn't recognize an item. Eighty-nine percent stated they ate the foods on the tray at home. When asked to name foods frequently eaten at home, 18.8% in group 1 named low-nutritional food, while 33.3% in group 2 and 25% in group 3 named foods from this category. The children made similar statements when queried about their favorite foods; 37.5% in group 1 named low-nutritional foods, compared to 53.3% and 43.8% in groups 2 and 3.

Thirty-one percent of the children in group 1 stated their parents do not let them eat their favorite foods, compared to 20% and 6.3% in groups 2 and 3. Six percent in group 1 stated their parents refused to buy their favorite foods, compared to 20% in group 2 and 6% in group 3.

In terms of whether there were foods the children were not allowed to buy with their own money, the percentages were 56.3, 40.0, and 50.0 for groups 1, 2, and 3, respectively. While the children were not always sure what kinds of food they were forbidden, if a food group was mentioned, it was the low-nutritional group.

Group 1's children had a tendency to say they believed all the foods on the tray were "good for them" (31.3% for group 1, compared to 6.7% and 25.0% for groups 2 and 3). Group 2 seemed somewhat more likely to exclude low-nutrition from their list of foods "good for them"; only 20.1 mentioned a low-nutrition item, compared to 31.3% in group 1 and 31.4% in group 3. It is important to remember, however, that these differences were not analyzed for statistical significance.

Evaluation of Commercials Across Experimental Conditions

Results of the ratings of the judges appear in Appendix K. Analyses of variance were performed on the ratings. Significant differences in evaluations were found on the dimensions visual interest and technical quality. Student-Neuman-Keuls comparisons of the means found the ratings for low-nutrition advertising on these two dimensions to be significantly greater than for the pro-nutritional or toy advertising conditions ($p < .05$).

While the analysis of variance on the two remaining dimensions (auditory interest and product appeal) did not yield significant differences between the three groups, the Student-Neuman-Keuls individual comparisons revealed that the ratings for low-nutrition commercials were significantly greater than those for toys and nutritional foods on the dimension auditory interest and significantly greater than those for nutritional foods on the dimension product appeal.

CHAPTER III

DISCUSSION

Significant within group effects were exhibited for five combined variables and two of the specifically advertised foods. Additional analyses of these pre-post changes suggested, for at least some of the major variables (Total Calories, Total Milliliters), changes were significant for group 1, and in some cases group 2, but not for group 3. Furthermore, for specifically advertised foods, children exposed to advertising for Hersheys and Fritos significantly increased their consumption of these foods while those not so exposed did not; and children exposed to ads for milk, grapes, and cheese did not increase their consumption of these pro-nutritional foods. In all cases the non-food advertising control group did not significantly increase consumption.

The interview data appeared generally supportive of the behavioral data. Children in group 1 reported higher percentages of remembering the commercials and seeing foods and beverages on the tray in the commercials than children in either groups 2 or 3. Furthermore, children in group 1 had a greater tendency to say they believed all the foods on the tray were good for them than children in groups 2 and 3.

Although the within group pre-post changes and interview data suggested possibly some effects for the low-nutritional advertising,

these results can only be considered preliminary, since between group and interaction effects were not found. There are two plausible alternative explanations of the lack of between group effects. One, the probability of obtaining statistically significant between group effects was reduced because of the large variability between subjects. Two, the experimental treatment was not sufficiently strong to demonstrate clear effects. The variability explanation will be explored first.

In an attempt to parcel out possible sources of the large variability on the Behavioral Eating Test, post-hoc analyses of the data by sex and socioeconomic status were conducted. It was found that boys in general consumed more at pretest and posttest than girls. This could best be explained on the basis of size differences between sexes (boys being larger than girls) or on activity differences (boys more active). There is a suggestion that girls may have been more influenced by the advertising. In condition 1 they increased their consumption considerably more than boys. With pro-nutritional messages, their consumption remained stable while that for boys increased. The effect for girls, i.e., no increased consumption, is less apparent as an effect of pro-nutritional advertising; but if pro-nutritional messages are seen as similar to messages from teachers and parents to eat "healthy foods" and to limit consumption of low-nutrition food, failure to increase consumption can be seen as compliance with these directives. This is somewhat speculative, however. More research is needed to clarify the effect of advertising on the different sexes.

Previous research suggests that lower socioeconomic group children watch more television and receive less pro-nutritional messages from other sources, i.e., parents, than middle SES children, and that they might consequently eat more low-nutrition food and be more influenced by low-nutrition advertising. The fact that this was not found in the current study might be due to several factors. First, the small sample size and large standard deviations may have obscured significant differences that exist. Second, children from the lower SES levels were mostly from the Federally-funded Head Start program which has as one of its primary goals teaching nutrition education and feeding nutritious snacks and lunches. Consequently, in terms of nutritious education and previous exposure to a variety of healthy foods, these SES groups may have been more equal than those in the population at large. A third possible explanation is that as the amount of television viewing has increased, the differences between socioeconomic groups have become less apparent (Lyle and Hoffman, 1972). Consequently the difference in eating habits and response to television advertising may be less dramatic or even non-existent.

The considerable variability between subjects in this study remains a problem. Ideosyncratic eating habits and food preferences probably contributed to the large variance. Adults and children do vary in what they eat. The present study suggests that the differences in the eating habits of children must be reckoned with. Future research should attempt to isolate some of these variables. Additional studies might consider

a blocking design at pretest to control for this variability and thus allow for a truer test of advertising influences on eating.

A second plausible explanation of the lack of between group and interaction effects is that the television advertising had no effects. This explanation is certainly possible, but seems unlikely given the general pattern of within group pre-post changes, and the existing literature.

The preliminary findings of this study are consistent with general findings of the non-behavioral and survey correlational studies that suggest low-nutrition advertising does increase the recall, purchase, and consumption of these products (Galst and White, 1976; Goldberg, Gorn, and Gibson, 1978a and 1978b; Ward and Wackman, 1977; Longstreet, 1967, and others). It supplements the findings of Ward, Reale, and Levinson (1971) that low-nutrition food advertising is more salient than other food advertising or advertising for toys. It expands the suggestive findings of Longstreet (1967) and Galst and White (1976), who found significant effects of low-nutrition advertising on the number of purchase influence attempts subsequently made by children, as well as the data of Sharaga (1974) and Dusere (1974) on the effects on nutrition knowledge. This study, however, adds to the previous studies by its methodological refinement, i.e., the use of both behavioral and self-report measures in an experimental design.

The failure of pro-nutritional advertising to significantly effect changes in nutritional food consumed or to create a substantial impact on the memory of products advertised could be related to the variability hypothesis previously discussed or to the fact that these ads were not

as sophisticated as the low-nutritional ads. The independent ratings of the experimental conditions showed that the pro-nutritional advertising was not as visually interesting nor as sophisticated in technical quality as the low-nutritional advertising. Indeed, low-nutritional advertising appears to utilize many of the techniques which the modeling literature has proven to be successful--i.e., multiple models, peer groups, attractive models having fun, etc. In addition, this advertising uses other attention-getting techniques such as catchy songs, enhanced screen action, etc. Pro-nutrition advertising, on the other hand, is somewhat scarce. What little exists is often produced by non-profit groups or by small local farm groups and aired often as a public service. It is produced with a lower budget and consequently uses much less sophisticated techniques. The advertising for pro-nutritional products in this study may have been particularly lacklustre in comparison to the low-nutrition advertising, but it was deemed an accurate representation of the general quality of pro-nutritional advertising today.

In conclusion, the large variability between subjects clearly reduced the probability of significant between group and interaction effects. The generally consistent pattern of pre-post changes on the behavioral eating test and the interview data suggested that the low nutritional commercials had some incremental effect on actual caloric consumption. However, these results can only be considered preliminary until additional studies are conducted that more fully control for pretest variability.

It is noteworthy that, while some effects were demonstrated for the behavioral eating test, there were few consistent within or between group effects for the food preference scale, and the correlations between behavioral items such as calories consumed and the total food preference score were low. This would appear to provide research evidence for the criticism of much of the current literature on children and television (Roberts, in press; National Science Foundation, 1977; Rychtarick, Knivilla, and Jeffrey, 1978). Roberts states "young persons' expressions of product preferences are a large step removed from overt behavior." The low correlations between the two dependent measures of this study suggest that is, in fact, the case, at least with the assessment procedures employed in this study. It is possible that a more simple scale, requiring the subjects to make less fine discriminations, might be a more reliable measure of food attitudes. It was the impression of the experimenter that these children had difficulty with relative judgements and concepts such as 'better' or 'best'. Nevertheless, the low BET-FPS correlations underscore the potential validity problems with the typical self-report inventory for assessing actual food consumption.

In addition to highlighting validity problems with the self-report data, this study presents a behavioral eating test as a feasible means of measuring experimental effects in children's media research. Previous research using behavioral measures (with eating behavior, Jeffrey and Shirley, 1977; Price and Grinker, 1973; Schachter, Goldman and Gordon, 1968; and with drinking, Higgins and Marlett, 1973;

Marlatt, Demming, and Reid, 1973) have suggested the utility and validity of such measures. Previous research with the behavioral eating test used in this study (Lemnitzer, Jeffrey, Hess, Hickey, and Stroud, 1978) found test-retest coefficients in the $+0.80$ to $+0.98$ range for the combined variables. The stability of the pre-post BET scores over time in the toy advertising group in the current study would appear to add to the data which suggest this behavioral eating test as a valid and reliable measure of food consumption in a laboratory setting.

A supplementary but important finding of this study, emanating from the interview data, is the replication of developmental trends in the cognitive processing of commercials. Children in this study showed little awareness of the purpose of a commercial or the difference between a program and a commercial. Similar results for this age group were found by Blatt, Spender and Ward (1971), Ferguson (1975), Ward, Reale and Levinson (1971) and others. The importance of this lack of awareness is that children in this age group are more likely to be vulnerable to such advertising and less able to make informed choices about what is good for them.

In summary, this study appears to demonstrate some treatment effects, particularly for low-nutrition advertising on the Behavioral Eating Test and the posttest interview. However, these findings must be stated tentatively because of the large variability between subjects and the failure to achieve significant between-group effects. These preliminary results suggest that pro-nutritional advertising as it exists today may do little to influence food preference and eating

habits. It appears that to be effective, pro-nutritional ads must be as lively, appealing, and sophisticated as low-nutritional ads.

Future research might concentrate on isolating variables which cause such large fluctuations in eating behavior between children.

It might also look at different age groups or different numbers of exposures to television ads. Also, it seems prudent that research in this area be designed to create a sound empirical foundation which can serve in the development of an enlightened social policy in regard to children's television advertising.

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A P P E N D I C E S



APPENDIX A

University of Montana

Missoula, Montana 59812

(406) 243-0211

ST. PAUL'S PRESCHOOL PARENT:

Children's television programming and especially food advertising directed at children has become an increasing source of concern to parents, teachers, and public policymakers. Much of the effect on children of television advertising remains unclear. Little systematic research has been undertaken to clarify these important social issues. Dr. Jeffrey of the Psychology Department has recently received a small grant from the University of Montana to study this area. Beginning the middle of April we will conduct an investigation of children's eating habits and children's television programming.

We have discussed this study with the pastors at St. Paul and the director of the preschool. We need to enlist the aid of you and your child. Specifically, we would like to have your child taste some of the following foods and beverages: cheese, apples, oranges, carrots, grapes, milk, Hershey bars, Fritos, Kool-Aid, Pepsi, chocolate chip cookies, and cereal. We would also like to ask your child to watch a 12-minute segment of cartoons with standard network advertising. Children who participate will be brought to the study room twice, approximately one week apart, for 15 to 20 minutes each time. On each day, eight minutes will be spent tasting foods and the total time required will not exceed 50 minutes on the two days together. Your child may taste or decline to taste any of the foods on the tray. Also, your child may leave the room before the study is completed if he/she so desires. Children will be accompanied to and from class by a college student.

We sincerely hope you will grant permission for your child to participate. You can indicate your approval by filling out the bottom portion of this letter and returning it to us when you bring your child to school on Monday, May 8. We will certainly plan to provide you with information concerning the results of our investigation. If you have any questions, please feel free to call us this weekend at 728-7171.

Sincerely,

D. Balfour Jeffrey, Ph.D./Asst. Professor

Nancy Lemnitzer

Nancy Lemnitzer/Graduate Student

Child's name: _____ Age: Years _____ Months _____

Do you grant permission for my child to participate in the above project: Yes ___ No ___
(check one)

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

Parent Signature: _____ Parent Occupation: _____



University of Montana
Missoula, Montana 59812

406) 243-0211

Head Start Parent(s):

several weeks ago we sent out letters to all Head Start Parents telling of research we are doing and asking for permission to work with Head Start children.

We are attempting to study the effects of children's television advertising on food preferences and attitudes. We would like to ask your child to watch a 12-minute segment of cartoons with national network advertising and then to taste some foods to give us an idea about what kids like to eat. Foods offered will be cheese, apples, orange juice, celery, carrots, grapes, chocolate bars, Fritos, Kool-aid, Pepsi, chocolate chip cookies, and cereal. Children who participate will be brought to the study rooms twice, approximately one week apart, for about 20 minutes each time. Only 8 minutes will be spent actually tasting foods, and children will not be asked to try foods they do not wish to eat. Also, children may leave the room at any time if the study is completed if they wish.

We have discussed this study with the Head Start Policy Council and staff, and they have approved and endorsed our project. But we also need the voluntary participation of you and your child. Children's television programming, and especially food advertising directed at children, has become an increasing source of concern to parents, teachers and public policy-makers, and there is a great need for careful research in this area. We sincerely hope you will grant permission for your child to participate.

You can indicate your approval by filling out the bottom portion of this letter and returning it in the enclosed postage-free envelope. We do plan to provide you with information concerning the results of our investigation. If you have any questions, please feel free to call us at 243-5664 or 243-4523.

Sincerely,

D. Balfour Jeffrey, Ph.D./Assistant Professor

Nancy Lemnitzer/Graduate Student

Child's Name _____ School _____

Age _____ Teacher _____

I grant permission for my child to participate in the above project. Yes _____ No _____
(check one)

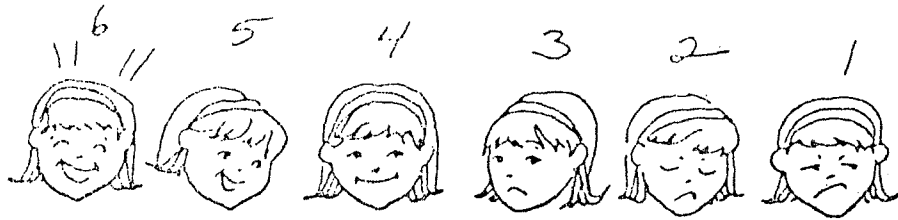
Does your child have any food allergies? If so, please indicate allergenic foods:

Parent Signature: _____

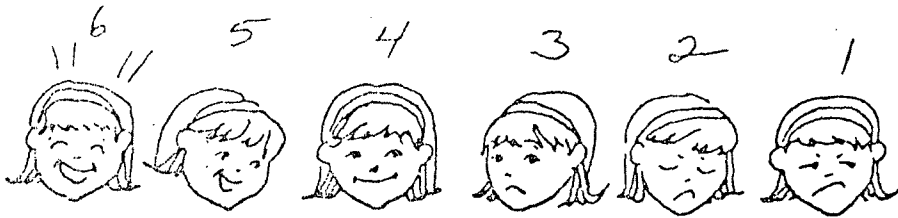
Parent Occupation: _____

Food Preference Summary

1. Apples



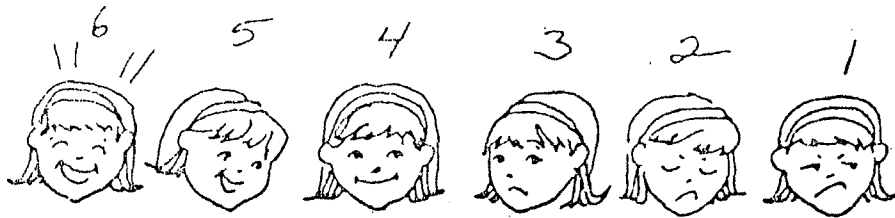
2. Cookies



3. Carrots



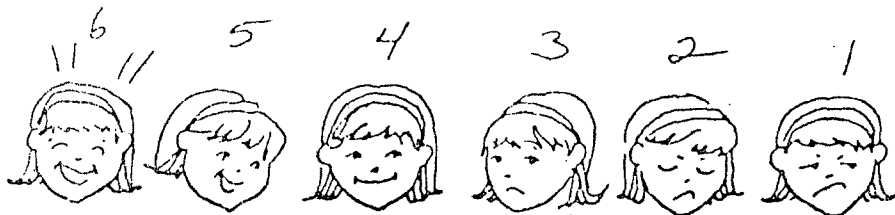
4. Cereal



5. Cheese



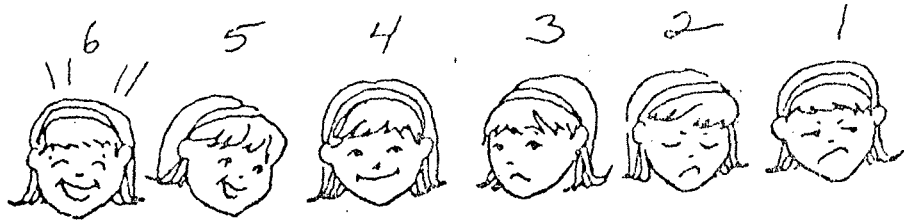
6. Jritos



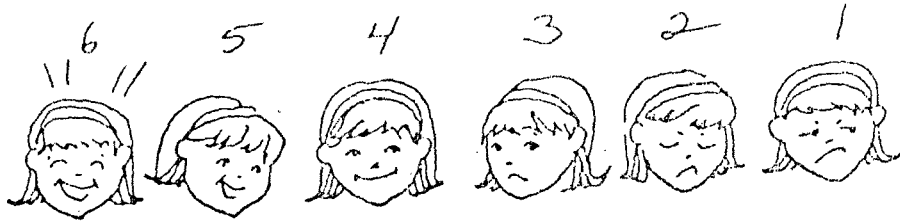
7. Kool-Aid



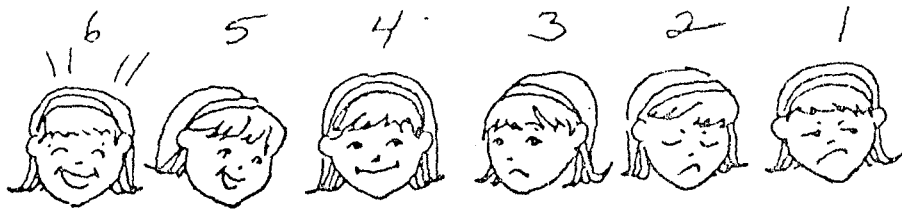
8. Orange Juice



9. Pepsi



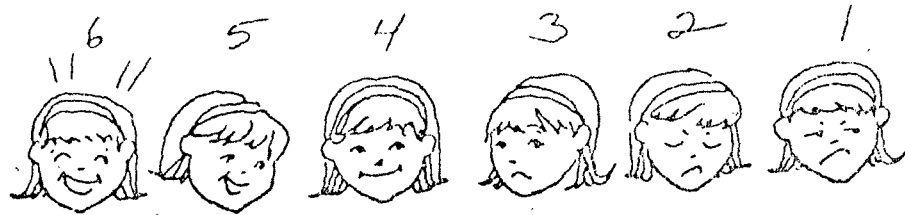
10. Milk



11. Hershey bars



12. Grapes



APPENDIX C

PRE-TREATMENT INTERVIEW FORM

SUBJECT NO. _____ DATE _____
 NAME _____ TIME _____
 D.O.B. _____ GRADE _____
 AGE _____ WEIGHT/HEIGHT _____

1. Did you enjoy coming here today? Yes _____ No _____
2. Did you know what all the foods were? Yes _____ No _____
3. a. Which didn't you know? (Show photo of each of the foods and have child point to one he/she didn't know.)
- Grapes _____, Carrots _____, Cheese _____, Apples _____, Milk _____,
 Orange juice _____, Candy _____, Cooky _____, Fritos _____,
 Cereal _____, Soda _____, Kool-Aid _____.

3. (Administer the evaluative scale here)

4. Do you eat any of these foods at home? (spreading pictures out on table)

If yes, ask Which ones do you eat at home?

Grapes _____, Carrots _____, Cheese _____, Apples _____, Milk _____,
 Orange juice _____, Candy _____, Cooky _____, Fritos _____,
 Cereal _____, Soda _____, Kool-Aid _____.

5. What kinds of foods do you eat at home? (Probe: "snack foods like potato chips, or foods like fruits and vegetables?")
- _____
- _____

6. What are some of your favorite foods? (If the child mentions only foods from the taste test, ask "Do you like any other foods we didn't have here today?")
- _____
- _____

7. Do your parents let you eat your favorite foods? Yes _____ No _____

Sometimes

Do they buy them for you? Yes _____ No _____ Sometimes _____

Do they let you pick them out at the store? Yes _____ No _____

Sometimes _____

8. Do you sometimes buy your favorite foods on your own with your allowance or other money you may have? Yes _____ No _____

9. Are there any foods you're not allowed to buy with your own money?

Yes _____ No _____ If yes, ask "What foods?" _____

10. What was the last meal you ate before you came here? (Probe if necessary: "Breakfast, or lunch or supper?"

Did you have anything else to eat since then? Yes _____ No _____

What? _____

APPENDIX D

POST-TREATMENT INTERVIEW FORM

1. Administer questions 1 and 10 from the pre-treatment interview and the evaluative scale.
2. Did you like the TV programs? Yes _____ No _____
3. Do you remember the commercials shown during the TV programs? Yes _____ No _____
4. What were the things being advertised? _____

5. Do you remember the kind or brand of _____ it was? Yes _____ No _____
What brand? _____
6. Do you remember what happened in the commercial? Yes _____ (Go to question 6a) No _____ (Go to question 7)
 - a. Tell me what happened? _____

 (Go to question 8)
7. (RECOGNITION QUESTION) Do you remember the _____? Yes _____ No _____
 - a. What happened to the _____? Etc. _____

8. Did you see any of the foods on the food tray in the commercials? Yes _____
No _____
Did the commercials affect the kinds of foods you ate? Yes _____
No _____
9. Do you have a TV at home? Yes _____ No _____
10. How often do you watch TV? (Every day _____, Every other day _____,
Twice a week _____, Once per month _____, Never _____.)

11. When you watch TV, you see both programs and commercials. What is the difference between a TV program and a TV commercial? (Probe hard: "Anything else?" If a child defines what a commercial is, skip to question 12a.) _____

12. What is a TV commercial? (Probe hard: "Is there any other way you can tell me what a commercial is?") _____
 a. What do commercials try to do? (Probe: "Anything else they try to do?")

13. Do you think TV commercials always tell the truth? Yes _____ No _____
14. Do your parents sometimes refuse to let you watch certain programs? Yes _____
 (Go to question 14a) No _____ (Go to question 15)
- a. Which programs don't they let you watch? _____
15. Which of the foods we gave you today are good for you?
 Grapes _____, Carrots _____, Cheese _____, Apples _____, Milk _____,
 Orange juice _____, Candy _____, Cooky _____, Fritos _____, Cereal _____,
 Soda _____, Kool Aid _____.
16. Do you have any ideas about why we brought you over here today? (Probe)
 No _____ Yes _____ Why? _____

 Can you think of any other reasons? _____

Appendix E

Table 8

Analyses of Variance on Food Preference Scores
for Advertised Foods
(in Total Calories)

	<u>Source</u>	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>Probab.</u>
<u>Fritos</u>	A	5.973	2.987	2	1.268	0.291
	J	3.447	3.447	1	5.400	0.023*
	AJ	0.468	0.234	2	0.366	0.700
<u>Grapes</u>	A	8.267	4.133	2	0.997	0.621
	J	2.085	2.085	1	1.270	0.265
	AJ	2.654	1.327	2	0.808	0.544
<u>Hersheys</u>	A	4.116	2.058	2	2.331	0.107
	J	1.798	1.798	1	2.601	0.110
	AJ	0.285	0.143	2	0.206	0.816

* $p < .05$.

APPENDIX F

Table 15

Significance of Difference Between
Socioeconomic Groups on Posttest

	<u>Levels</u>	<u>t</u>
<u>Total Calories</u>		
<u>Groups</u>		
Low-Nutrition	3 & 4	1.42
Pro-Nutrition	3 & 4	.28
	3 & 5	1.30
	4 & 5	1.43
Toy	2 & 3	.67
	2 & 4	.04
	2 & 5	.86
	3 & 4	1.43
	3 & 5	.99
	4 & 5	1.16
<u>Total Milliliters</u>		
<u>Groups</u>		
Low-Nutrition	3 & 4	1.38
Pro-Nutrition	3 & 4	.05
	3 & 5	.46
	4 & 5	.46
Toy	2 & 3	.29
	2 & 4	.75
	2 & 5	.83
	3 & 4	.54
	3 & 5	.41
	4 & 5	.03

Hollingshead's Five Factor Index
OCCUPATIONS

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

APPENDIX H

PRE-TREATMENT INTERVIEW

Responses by Group, Low-Nutritional (I), Pro-Nutritional (II),
Toy Advertising (III), All Groups Combined

	Group I		Group II		Group III		All Groups Combined	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
1. Did you enjoy coming here today?								
Yes	15	93.7	15	100.0	15	93.7	45	95.7
No	0	0.0	0	0.0	0	0.0	2	4.3
No Response	1	6.3	0	0.0	1	6.3		
2. Did you know what all foods were?								
Yes	13	81.3	12	80.0	11	68.7	36	76.6
No	2	12.4	3	20.0	5	31.3	11	23.4
No Response	1	6.3	0	0.0	0	0.0		
2a. Which didn't you know?								
None	11	68.8	13	86.6	13	81.2	37	78.8
Grapes	1	6.3					1	2.1
Orange Juice	1	6.3					1	2.1
Hershey			1	6.7			1	2.1
Fritos	2	12.5					2	4.3
Honeycombs	1	6.3					1	2.1
Cola					1	6.6	1	2.1
No Response			1	6.7	2	12.2	3	6.4
4. Do you eat any of these foods at home?								
Yes	15	93.7	12	80.0	14	87.5	42	89.3
No	1	6.3	2	13.3	0	0.0	5	10.7
No Response	0	0.0	1	6.7	2	12.5		
Which Ones?								
None	1	6.3	3	20.0	1	6.3	1	2.1
Cheese	0	0.0	0	0.0	0	0.0	3	6.4
Carrots	2	12.5	2	13.3	2	12.5	5	10.7
Grapes	2	12.5	2	13.3	1	6.3	6	12.9
Apples	0	0.0	1	6.7	2	12.5	3	6.4
Milk	0	0.0	0	0.0	3	18.8	1	2.1
Orange Juice	1	6.3	0	0.0	0	0.0	4	8.5
Candy	0	0.0	0	0.0	0	0.0	4	8.5
Fritos	0	0.0	0	0.0	0	0.0	1	2.1
Chips Ahoy	0	0.0	0	0.0	0	0.0	1	2.1
Honeycomb	1	6.3	0	0.0	0	0.0	1	2.1
Cola	0	0.0	1	6.7	0	0.0	16	34.0
Kool-Aid	0	0.0	0	0.0	0	0.0	1	2.1
All of them	7	43.6	5	33.3	5	31.0	0	0.0
No Response	0	0.0	0	0.0	1	6.3	0	0.0

	Group I		Group II		Group III		All Groups Combined	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
<u>Second Response:</u>								
None	10	62.5	10	66.7	13	81.3		
Cheese	0	0.0	2	13.3	1	6.3		
Apples	2	12.5	1	6.7	0	0.0		
Milk	2	12.5	0	0.0	0	0.0		
Hershey	0	0.0	1	6.7	0	0.0		
Fritos	1	6.3	0	0.0	0	0.0		
Honeycombs	1	6.3	1	6.7	2	12.4		
5. What kinds of foods do you eat at home?								
Meat	2	12.5	4	26.7	2	12.5	4	8.5
Poultry	1	6.3	0	0.0	0	0.0	1	2.1
Vegetables	2	12.5	0	0.0	1	6.3	3	6.4
Fruits	0	0.0	0	0.0	2	12.5	2	4.3
Dairy Products	1	6.3	0	0.0	0	0.0	1	2.1
Bread & Cereal	1	6.3	1	6.7	3	18.8	5	10.6
Low-Nutrition Food	3	18.8	5	33.3	4	25.0	12	25.5
Nutritional Liquid	2	12.5	5	0.0	0	0.0	2	2.1
Everything	0	0.0	0	0.0	1	6.3	1	2.1
No Response	4	25.0	5	33.3	3	18.8	17	36.3
<u>Second Response:</u>								
None	11	68.8	12	80.0	11	68.6	0	0.0
Meat	4	25.0	0	0.0	0	0.0	4	8.5
Vegetables	0	0.0	0	0.0	1	6.3	1	2.1
Fruits	1	6.3	2	13.3	2	12.5	5	10.6
Dairy Products	0	0.0	1	6.7	0	0.0	1	2.1
Bread & Cereal	0	0.0	0	0.0	1	6.3	1	2.1
No Response	0	0.0	0	0.0	1	6.3	35	74.5
6. What are some of your favorite foods?								
None	1	6.3	0	0.0	0	0.0	0	0.0
Poultry	0	0.0	0	0.0	0	0.0	2	4.3
Vegetables	1	6.3	0	0.0	1	6.3	2	4.3
Fruits	2	12.5	1	6.7	2	12.5	5	10.6
Dairy Products	2	12.5	1	6.7	0	0.0	3	6.4
Bread & Cereal	1	6.3	1	6.7	0	0.0	2	4.3
Low Nutrition Food	6	37.3	8	53.3	7	43.6	21	44.7
Low Nutrition Liquid	0	0.0	1	6.7	1	6.3	2	4.3
Everything	0	0.0	1	6.7	1	6.3	1	2.1
No Response	3	18.8	2	13.3	4	25.0	9	19.0

	Group I		Group II		Group III		All Groups Combined	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
Second Response:								
None	16	100.0	10	86.7	12	75.0	0	0.0
Vegetables	0	0.0	0	0.0	2	12.5	2	4.3
Fruits	0	0.0	0	0.0	2	12.5	2	4.3
Bread & Cereal	0	0.0	0	6.7	0	0.0		
Low Nutrition Foods	0	0.0	0	0.0	0	0.0	3	6.4
Low Nutrition Liquid	0	0.0	1	6.7	0	0.0	1	2.1
No Response							39	82.9
7a. Do your parents let you eat your favorite food?								
Yes	7	43.8	6	40.0	7	43.8	20	42.6
No	5	31.3	3	20.0	1	6.3	9	19.1
Sometimes	4	25.0	6	40.0	6	37.5	16	34.0
No Response	0	0.0	0	0.0	2	12.5	2	4.3
7b. Do they buy them for you?								
Yes	8	50.0	6	40.0	8	50.0	22	46.8
No	1	6.3	3	20.0	1	6.3	5	10.6
Sometimes	7	43.8	6	40.0	6	37.5	19	40.5
No Response	0	0.0	0	0.0	1	6.3	1	2.1
7c. Do they let you pick them out at the store?								
Yes	5	31.3	7	46.7	10	52.5	22	46.8
No	2	12.5	3	20.0	5	31.3	5	10.6
Sometimes	9	56.3	5	33.3	1	6.3	18	38.3
No Response	0	0.0	0	0.0	0	0.0	2	4.3
8. Do you sometimes buy your favorite foods on your own with your allowance or other money you have?								
Yes	7	43.8	13	86.7	13	81.1	33	70.2
No	5	31.8	2	13.3	1	6.3	1	2.1
Sometimes	4	24.4	0	0.0	1	6.3	8	17.0
No Response	0	0.0	0	0.0	1	6.3	5	10.7
9. Are there any foods you're not allowed to buy with your own money?								
Yes	9	56.3	6	40.0	8	50.0	23	48.9
No	2	12.5	3	20.0	3	18.8	8	17.0
Sometimes	1	6.3	1	6.7	0	0.0	2	4.3
No Response	4	25.0	5	33.3	5	31.3	14	29.8
What Foods?								
None	7	43.8	9	60.0	7	43.8	23	48.9
Fruits	2	12.5	0	0.0	0	0.0	2	4.3
Low Nutrition Foods	4	25.0	1	6.7	5	31.3	10	21.3
No Response	3	18.8	5	33.3	4	25.0	12	25.5

	Group I		Group II		Group III		All Groups Combined	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
10. What was the last meal you ate before you came?								
Breakfast	9	56.3	10	66.7	10	62.5	29	61.7
Lunch	4	25.0	5	33.3	5	31.3	14	29.8
No Response	3	18.8	0	0.0	1	6.3	4	8.5
10a. Anything else since then?								
Yes	0	0.0	0	0.0	0	0.0	0	0.0
No	16	100.0	15	100.0	16	100.0	44	93.6
No Response	0	0.0	0	0.0	0	0.0	3	6.4

APPENDIX I

POST-TREATMENT INTERVIEW

Responses by Group, Low-Nutritional (I), Pro-Nutritional (II),
Toy Advertising (III), All Groups Combined

	<u>Group I</u>		<u>Group II</u>		<u>Group III</u>		<u>All Groups Combined</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
1. Did you enjoy coming here today?								
Yes	13	81.3	15	100.0	14	87.5	42	89.4
No	0	0.0	0	0.0	0	0.0	1	2.1
No Response	3	18.7	0	0.0	2	12.5	4	8.5
10. What was the last meal that you had?								
Breakfast	9	56.3	9	60.0	8	50.0	26	55.3
Lunch	4	25.0	5	33.3	5	31.3	14	29.8
No Response	3	18.7	1	6.7	3	18.8	7	14.9
10a. Anything else?								
No	14	87.5	15	100.0	13	81.3	42	89.4
No Response	2	12.5	0	0.0	3	6.3	5	10.6
2. Did you like the television program?								
Yes	16	100.0	14	93.3	14	87.5	44	93.6
No	0	0.0	0	0.0	0	0.0	0	0.0
No Response	0	0.0	1	6.7	2	12.5	3	6.4
3. Do you remember the commercials shown?								
Yes	9	56.3	5	33.3	8	50.0	22	46.8
No	7	43.7	10	66.7	5	31.3	22	46.8
No Response	0	0.0	0	0.0	3	18.7	3	6.4
4. What were the things being advertised?								
Pepsi	1	6.3	0	0.0	1	6.3	2	4.3
Fritos	0	0.0	0	0.0	0	0.0	0	0.0
Hershey bars	4	25.0	0	0.0	1	6.3	5	10.6
Grapes	0	0.0	1	6.7	0	0.0	1	2.1
Milk	0	0.0	0	0.0	0	0.0	0	0.0
Cheese	0	0.0	0	0.0	0	0.0	0	0.0
Record Player	0	0.0	0	0.0	2	12.4	2	4.3
Building Set	0	0.0	0	0.0	0	0.0	0	0.0
Spectograph								
Pens	0	0.0	0	0.0	0	0.0	0	0.0
Something Not								
Advertised	1	6.3	1	6.7	0	0.0	2	4.3
Don't Remember	10	62.4	13	86.6	12	75.0	35	74.4

	<u>Group I</u>		<u>Group II</u>		<u>Group III</u>		<u>All Groups Combined</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
Second Response:								
Pepsi	2	12.5	0	0.0	0	0.0	0	0.0
Fritos	3	18.8	0	0.0	2	12.5	0	0.0
Don't remember	11	68.7	15	100.0	14	87.5	0	0.0
6. Do you remember what happened in the commercial?								
Yes	3	18.7	0	0.0	1	6.3	4	8.5
No	12	75.0	15	100.0	9	56.3	36	76.6
No response	1	6.3	0	0.0	6	37.4	7	14.9
6a. What happened?								
Very Accurate*	1	6.3	0	0.0	0	0.0	1	2.1
Inaccurate	2	12.5	0	0.0	0	0.0	2	4.3
No response	13	81.2	15	100.0	16	100.0	44	93.6
8. Did you see any of the foods on the food tray in the commercials?								
Yes	5	31.3	3	20.0	1	6.3	9	19.2
No	11	68.7	12	80.0	10	62.5	33	70.2
No response	0	0.0	0	0.0	5	31.2	5	10.6
8a. Did the commercials affect the kind of food you ate?								
Yes	1	6.3	1	6.7	1	6.3	3	6.4
No	14	87.4	14	93.3	9	56.3	37	78.7
No response	1	6.3	0	0.0	6	37.4	7	14.9
9. Do you have a TV at home?								
Yes	16	100.0	14	93.3	16	100.0	45	95.8
No	0	0.0	1	6.7	0	0.0	1	2.1
No response	0	0.0	0	0.0	0	0.0	1	2.1
10. How often do you watch TV?								
Every day	9	56.3	8	53.3	6	37.4	23	48.9
Every other day	5	31.3	3	20.0	5	31.3	13	27.7
Two times a week	2	12.4	3	20.0	5	31.3	10	21.3
Once a month	0	0.0	0	0.0	0	0.0	1	2.1
Never	0	0.0	0	0.0	0	0.0	0	0.0
No response (Don't know)	0	0.0	1	6.7	0	0.0	0	0.0

	<u>Group I</u>		<u>Group II</u>		<u>Group III</u>		<u>All Groups Combined</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
11. When you watch TV you see both programs and commercials. What is the difference between a TV program and a TV commercial?								
Correctly defined	0	0.0	0	0.0	0	0.0	0	0.0
One or the other correct	2	12.5	2	13.3	0	0.0	4	8.5
Neither correct	3	18.8	2	13.3	2	12.5	7	14.9
No response (Don't know)	11	68.7	11	73.4	14	87.5	36	76.6
12. What is a television commercial?								
Completely correct	0	0.0	1	6.7	2	12.5	3	6.4
Partially correct	2	12.5	0	0.0	1	6.3	3	6.4
Incorrect	4	25.0	1	6.7	2	12.5	7	14.9
No response (Don't know)	10	62.5	13	86.6	11	68.7	34	72.3
14. Do your parents refuse to let you watch certain programs?								
Yes	8	50.0	5	33.3	4	25.0	18	38.3
No	3	18.8	6	40.0	10	62.5	21	44.7
No response	5	31.2	4	26.7	2	12.5	8	17.0
14a. What kind?								
Horror	0	0.0	2	13.3	0	0.0	2	4.3
Violent	2	12.5	0	0.0	2	12.5	4	8.5
Sex	0	0.0	0	0.0	1	6.3	1	2.1
After bedtime	2	12.5	0	0.0	0	0.0	2	4.3
Can watch anything	0	0.0	3	20.0	2	12.5	5	10.6
No response (Don't know)	12	75.0	10	66.7	11	68.7	33	70.2
15. Which of the foods we gave you today are good for you?								
Cheese	1	6.3	2	13.1	1	6.3	4	8.5
Carrots	0	0.0	1	6.7	3	18.8	4	8.5
Grapes	4	25.0	6	40.0	1	6.3	11	23.4
Apples	0	0.0	1	6.7	0	0.0	1	2.1
Milk	1	6.3	0	0.0	2	12.5	3	6.4
Orange Juice	0	0.0	0	0.0	0	0.0	0	0.0
Hershey	4	25.0	1	6.7	1	6.3	6	12.8
Fritos	0	0.0	1	6.7	1	6.3	2	4.3
Chips Ahoy	0	0.0	0	0.0	0	0.0	0	0.0

	<u>Group I</u>		<u>Group II</u>		<u>Group III</u>		<u>All Groups Combined</u>	
	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>	<u>No.</u>	<u>Percent</u>
Honeycombs	1	6.3	0	0.0	3	18.5	4	8.5
Cola	0	0.0	0	0.0	0	0.0	1	2.1
Kool-Aid	0	0.0	0	6.7	0	0.0	1	2.1
All of them	5	31.1	1	6.7	0	25.0	10	21.3
No response	0	0.0	1	6.7	0	0.0	0	0.0
<u>Second Response</u>								
Cheese	2	12.5	1	6.7	2	12.5	5	10.6
Carrots	3	18.3	7	46.5	0	0.0	10	21.3
Grapes	0	0.0	0	0.0	0	0.0	0	0.0
Apples	0	0.0	1	6.7	2	12.5	3	6.4
Milk	1	6.3	1	6.7	0	0.0	2	4.3
Orange Juice	0	0.0	0	0.0	1	6.2	1	2.1
Hershey	0	0.0	1	6.7	2	12.5	3	6.4
Fritos	2	12.5	0	0.0	0	0.0	2	4.3
Chips Ahoy	0	0.0	1	6.7	0	0.0	1	2.1
Honeycombs	1	6.3	0	0.0	0	0.0	1	2.1
Cola	0	0.0	0	0.0	0	0.0	0	0.0
Kool-Aid	0	0.0	0	0.0	1	6.3	1	2.1
All of them	0	0.0	0	0.0	0	0.0	0	0.0
No response	7	44.1	3	20.0	8	50.0	18	30.3

Appendix J

RATING INSTRUCTIONS

CHILDREN AND TELEVISION EXPERIMENTAL CONDITIONS

Please view the three experimental videotapes, approximately 12 minutes each. Each segment consists of a piece of program filler (cartoons from Saturday morning, identical in the three conditions) with six commercial insertions (three commercials, shown twice) which advertise either low-nutrition foods, high-nutrition foods, or toys. Look at each commercial and immediately after each, rate it on the following dimensions:

1. Visual Interest (Operational definition: The extent to which the commercial commands visual interest, with, for instance, movement, multiple product endorsers, imaginative cartoon representation, etc.)

1	2	3	4	5	6	7
Low Interest						High Interest

2. Auditory Interest (The extent to which the commercial commands auditory interest, with, for instance, catchy music or jingles, changing voices, etc.)

1	2	3	4	5	6	7
Low Interest						High Interest

3. Product Appeal (The extent to which the product advertised commands interest and is appealing.)

1	2	3	4	5	6	7
Low Appeal						High Appeal

4. Technical Quality (The degree of technical sophistication of the commercial. This involves an evaluation of visual and auditory techniques as well as the Gestalt of the commercial.)

1	2	3	4	5	6	7
Low Quality						High Quality

APPENDIX K-1

Evaluation of Quality of Commercials:
Means, Standard Deviations, and
Analyses of Variance of Judges Ratings

Means & Standard Deviations

	<u>Low-Nutrition</u>		<u>Pro-Nutrition</u>		<u>Toys</u>	
	<u>\bar{X}</u>	<u>s.d.</u>	<u>\bar{X}</u>	<u>s.d.</u>	<u>\bar{X}</u>	<u>s.d.</u>
Visual Interest	5.3*	.82	4.4	1.26	4.1	.74
Auditory Interest	5.5*	.71	4.4	1.34	4.5	.71
Product Appeal	4.9**	.88	4.3	1.06	4.8	.63
Technical Quality	5.3*	1.06	4.2	1.03	4.1	1.10

* mean rating significantly greater than for pro-nutritional or toy advertising condition, $p < .05$.

** mean rating significantly greater than for pro-nutritional advertising condition, $p < .05$.

Analyses of Variance

	<u>Source</u>	<u>SS</u>	<u>MS</u>	<u>df</u>	<u>F</u>	<u>Prob.</u>
Visual Interest	Between	7.80	3.90	2	4.14*	<.05
	Within	25.40	.94	27		
Auditory Interest	Between	7.40	3.70	2	1.80	>.05
	Within	55.40	2.05	27		
Product Appeal	Between	2.10	1.05	2	1.37	>.05
	Within	20.60	.76	27		
Technical Quality	Between	8.87	4.44	2	3.92*	<.05
	Within	30.60	1.13	27		

APPENDIX K-2

Evaluation of Quality of Advertising
in Experimental Conditions
Raw Scores

	<u>Judges</u>	<u>Low-N</u>	<u>Pro-N</u>	<u>Toys</u>
Visual Interest	1	5	4	4
	2	6	5	4
	3	6	4	4
	4	6	6	5
	5	4	3	3
	6	5	3	5
	7	5	6	4
	8	6	3	3
	9	6	4	4
	10	4	6	5
Auditory Interest	1	6	3	4
	2	6	6	4
	3	6	5	4
	4	6	5	5
	5	5	3	3
	6	5	4	5
	7	5	5	5
	8	6	2	5
	9	6	5	5
	10	4	6	5
Product Appeal	1	5	3	4
	2	5	6	5
	3	7	3	5
	4	4	4	5
	5	5	4	4
	6	5	4	6
	7	5	5	4
	8	5	4	5
	9	4	4	5
	10	4	6	5
Technical Quality	1	5	4	3
	2	6	5	4
	3	7	4	3
	4	4	3	5
	5	6	4	3
	6	6	3	5
	7	6	5	3
	8	4	3	4
	9	5	5	5
	10	4	6	6

APPENDIX L

Verbatim Transcript of Advertisements Used

Pepsi Scene: Children ages 9 through 11 playing softball, with uniforms that say "Pepsi". Coaches are drinking Pepsi in cans. The team appears to win. Scene ends celebrating victory, laughing, eating hamburgers and drinking Pepsi. People in the ad are of all races; there are girls and boys, adults and children.

With the above visual events, the Pepsi song is heard:

"Come on!
 Come on, come on and take the Pepsi way
 Come on, come on and have a Pepsi day
 You've found a taste to celebrate
 The Pepsi's cold, the food is great
 Come on, come on and have a Pepsi day
 Join the Pepsi Generation
 Have a Pepsi day
 Come on!"

Fritos A blonde, 16-17 year old couple (boy and girl) are on a beach
 "Light" with a picnic lunch and a bag of Fritos "Lights"; then scene
 Corn switches to an older couple (30's) in a sports car stopped at an
 Chips intersection. The woman is holding and eating a bag of Fritos
 "Lights" and the Fritos are floating upward to a truck driver
 parked beside them.

Music is hummed in the background and an announcer says:

"Fritos.....a remarkably light-tasting corn chip
 New Fritos "Lights"
 25 percent thinner, with a nice light taste
 Fritos "Lights"
 Whole grain corn
 and no preservatives
 New Fritos' brand "Lights"....natural style corn chips."

Hershey Scene: A group of 10 or 11 year olds run down a school hallway
 Chocolate around their coach, who is eating a Hershey bar; then scene
 Bars switches to a 12 or 13 year old English girl walking down
 schoolhouse steps, holding a Hershey bar and smiling. This
 occurs to the following song:

"Hershey is....the taste of chocolate that's always lots of fun
 Hershey is....the name for chocolate that's known to everyone
 Even if you cross the wide world over, it really doesn't matter
 where you are
 You're at home cause
 Hershey is....the great American chocolate bar
 Hershey is!"

Grapes (Music in background)
 On the screen, a homely little 8 or 9 year old girl with glasses and braces, chews gum, holding package.
 Announcer says: "That grape gum has sugar, artificial colors, and artificial flavoring."
 Scene switches to a bespeckled boy of approximately 14, looking at a grape candy bar.
 Announcer says: "That grape candy has sugar, preservatives, and artificial flavoring."
 Scene shows a chubby boy (approximately 10) in a leather jacket with a bottle of soda.
 Announcer says: "That grape soda has sugar, artificial colors, preservatives, and artificial flavoring. There is only one natural grape snack."
 Scene shows a pretty 6 or 7 year old girl, with curls and party-type dress. She is smiling sweetly and holding a grape, which she pops into her mouth.
 Announcer says: "Grapes. If you want to taste a grape, eat a grape. Grapes, the natural snack."

Milk Scene: Cartoon characterization of a white-haired "mad" scientist in a laboratory with a hunched-backed assistant.
 Assistant says: "Master, tell me the secret, how do you build a healthy body?"
 Scientist says: "There is no secret to building a healthy body, Igor, but you must assemble the right ingredients. Something from the milk group (shown); something from the meat group (shown); vegetables and fruits (shown); breads and cereals (shown), To build a healthy body, Igor, eat from each of the four food groups every day, and do it moderately, Igor."

Cheese Scene: A male "cowboy" cartoon character rides in on a horse, gets off and half sings, half says (while keeping time and dancing):
 "Oh, howdy pardner, time for Timer...
 Do you ever get that hungry feeling after school? Boy, I do.
 I'm so hungry, I could eat a wagon wheel."

When I'm slow on the draw and I need something to chaw,
 I hanker for a hunk of cheese.
 When my ten gallon hat's a feelin five gallons flat,
 I got something planned which is little cheese sandwiches.
 Come on!
 Cheese is a great little snack to tide you over'till dinner.
 If you want something delicious and nutritious, cheese is a
 super snack. Look....a wagon wheel (rolling a cheese and
 cracker sandwich)
 When my get up and go has got up and went,
 I hanker for a hunk of cheese.
 When I'm dancing a hoedown and my boots kinda slow down,
 or any time I'm weak in the knees,
 I hanker for a hunk of, a slab or slice or chunk of,
 a snack that is a winner and yet won't spoil my
 dinner. I hanker for a hunk of cheese.
 Yahoo!"

Close and Play Record Player Scene: 3 to 6 year-old children are seen playing in a large room. One child puts a record on the record player. The others run over to join him. They then dance in a circle to the music.
 (Children laughing and music)

Male announcer: "It's Kenner's new electronic Close and Play Phonograph....now with solid state sound (Batteries not included)."

Children singing: "I like Close and Play....It works in an easy way. To make it play, close the top, lift it up to make it stop."

One child says: "Let me play the Close and Play."

Announcer: "Kenner's new electronic Close and Play phonograph! (45 r.p.m. records not included.)"

Leggo Building Set Scene: Two boys, approximately 6 years of age, are shown close up, playing and building something with the Leggo building blocks.

Male announcer says: "Here it comes, Leggo Building Set 400."

Kids say: "Wow"

Male singer, sings: "With deep-grove tires, snap on wheels and a helicopter tailpin...

Bricks and bricks so you can build and build and you can make that rotor spin.

You can build yourself a forklift, and use a cranehook for a tow.

They came up with a great idea...and built it with Leggo!"

Male announcer: "Leggo Building Set 400, with many different kinds of pieces and hundreds of bricks for building. From Leggo!"

Spectograph Scene: A boy and a girl, about age 7, are shown using the Drawing Spectograph Drawing Set and demonstrating their pictures.
Set

Male Announcer: "Kenner's new Spectograph."

Children singing: "Three different color pens all drawing at once, make three very different designs!"

Male announcer: "You can make hundreds of colorful drawings..."

Children singing: "Three different color pens, all drawing at once, make three very different designs. Three different color pens, all drawing at once, make three very different designs."

Male announcer: "Spectograph....new from Kenner."

APPENDIX M
DEPARTMENT OF PSYCHOLOGY

University of Montana
Missoula, Montana 59812
406) 243-0211

March 23, 1979

Missoula Head Start Director
Board of Directors
Policy Council
Teaching Staff
140 South 6 East
Missoula, Mt. 59801

Dear Head Start People:

We wish to acknowledge and formally thank you again for allowing us to work with four and five year olds in the Head Start program to study the effects of television advertising on food preference. At times our presence made things more complicated for the teachers and we appreciated their willingness to assist us. The open, helpful attitude of the entire Head Start organization, in fact, made this research project possible.

The results took considerably longer than expected to analyze and write. We are just completing our final reports and have included an abstract of the results. If you would like additional information, please contact either of us, and we will be happy to answer any of your questions. We think this topic is of concern to parents and teachers alike and hope that our continuing research at the University of Montana will provide scientific evidence for public policy decisions on advertising for children.

Thanks again for your support and assistance.

Sincerely,

D. Balfour Jeffrey
Assistant Professor

Nancy Lemitzer
Nancy Lemitzer

Nancy Lemitzer
Nancy Lemitzer

DBJ/cr
Encl.

P.S. Please circulate copies to all appropriate people.

THE EFFECTS OF LOW NUTRITIONAL, PRO NUTRITIONAL, AND NON FOOD
COMMERCIALS ON THE EATING BEHAVIOR OF CHILDREN

Nancy Lemnitzer, M. Joan Hess, J. Scott Hickey,

Julia Stroud, and D. Balfour Jeffrey

University of Montana

Summary

Children's television has recently come under fire for the advertisement of foods high in sugar and low in nutrition. Critics suggest such advertising is a major source of influence of dietary habits which contributes to obesity, dental cares, and many related problems. However, causal evidence to support these assertions is scant. Much of the existing research is correlational or relies on questionnaire data, with the obvious complications of self-report. Little has yet been garnered on the extent to which commercials affect actual behavior. Also there is little research as yet on the effects of pro-nutritional advertising. The purpose of this study was to provide experimental data on the role of children's television advertising in food consumption, to provide behavioral as well as self-report measures of experimental effects, and, in addition, to look at the effect of pro-nutritional advertising.

Methods

Children ages four and five from preschool programs in Missoula, Montana were randomly assigned to one of three treatment groups. They were subjected to a 12-minute segment of typical Saturday morning television programming which was edited to contain six commercials, varied for the three experimental conditions. Group I saw six commercials for low-nutrition, high-caloric foods, Group II saw six commercials for pro-nutritional foods, and Group III saw six commercials for toys. Dependent measures consisted of a behavioral taste test-- a tray with equal-sized portions of low and pro-nutritional foods and beverages-- and an evaluative Likert-type scale on which foods and beverages from the taste test could be rated. Taste test and food evaluative scale were administered one week prior to, and immediately following, the experimental manipulation.

Results and Discussion

To begin with, the study found considerable variability in food preferences and "eating styles" between children that suggests methodological refinements for our continuing research in this area.

Data from the study indicated a significant increase in total calories consumed and in amounts of advertised foods consumed from pre-test to post-test for children who viewed low-nutritional commercials. However, significant

differences in overall consumption between groups were not found. It was hypothesized that this was due to the subject variability mentioned.

The study also showed low correlations between their attitudes and their actual eating behavior on the taste test.

This study would appear to provide preliminary indications that low-nutritional advertising affects children's food consumption. This conclusion is cautious because of the data and calls for continuing research. The study also provides support for critics of existing children's television research which relies solely on questionnaires, suggesting that children's expressed attitudes about food are inconsistent and show a low correlation with actual eating behavior.



APPENDIX M
DEPARTMENT OF PSYCHOLOGY

University of Montana
Missoula, Montana 59812
406) 243-0211

Dear Parents:

Last school year you gave your permission for your child to participate in a University of Montana Psychology Department study on the effects of television advertising on food preferences, and your child subsequently came to our experimental trailer and helped us with our study.

It has taken us quite some time to statistically analyze and think about our results, but that process is now complete. We are about to submit our findings for publication and we are pleased to report them to you and to thank you for permitting your child to participate in this study. To begin with, we found that children vary considerably in the amounts they eat and the types of food they choose. Secondly, we found that what they say they like to eat (on food questionnaires) is not necessarily what they actually eat. Indications of the influence of low-nutrition advertising were not as strong as we had predicted; however, we did find preliminary evidence that children increase their caloric consumption after such advertising. The results also point toward the ineffectiveness of the type of pro-nutritional advertising currently available. Children who saw advertising for grapes, cheese, or milk did not appear to increase their consumption of these foods.

This study is one in a series of six interlocking studies which will look at the effects of television food advertising on children's food preferences. Its results are as yet preliminary and call for continuing efforts to collect the data which will clarify these relationships and provide scientific evidence for public policy makers.

Thank you again for permitting your child to participate in this study.

Sincerely,

D. Balfour Jeffrey, Ph.D.
Assistant Professor

A handwritten signature in cursive script that reads "Nancy B. Lemnitzer".

Nancy B. Lemnitzer
Research Assistant

APPENDIX N

T.E.A.M. RESEARCH PROGRAM - CODING SHEETS

118

<u>Column</u>	<u>Data</u>	
1	Card number (1,2,3,...,n)	<u>Card 0</u>
2	Number of study (1,2)	
3	Number of group (1,2,3,4)	
4-5	ID number within a group	
6-9	Blank	
10-12	Sex of subject Male=001, Female=002	
13-15	SES	
16-18	Age (in years and tenths - see next page for conversion)	
19-21	Height in inches	
22-24	Weight in pounds	
25-30	Date of pre-test	
31-34	Time of pre-test	
41-44	Time of post-test	
45-47	Cheese	
48-50	Carrots	
51-53	Grapes	
54-56	Apples	
57-59	Milk	
60-62	Orange Juice	
63-65	Hershey	
66-68	Fritos	
69-71	Chips Ahoy	
72-74	Honeycombs	
75-77	Cola	
78-80	Kool-Aid	

<u>Column</u>	<u>Data</u>
1	Card number <u>Card 1</u>
2	Number of study
3	Number of group
4-5	ID number within a group
6-9	Blank

10-12	Cheese
13-15	Carrots
16-18	Grapes
19-21	Apples
22-24	Hershey
25-27	Fritos
28-30	Chips Ahoy
31-33	Honeycombs
34-36	Cheese
37-39	Carrots
40-42	Grapes
43-45	Apples
46-48	Milk
49-51	Orange Juice
52-54	Hershey
55-57	Fritos
58-60	Chips Ahoy
61-63	Honeycombs
64-66	Cola
67-69	Kool-Aid
70-72	Cheese
73-75	Carrots
76-78	Grapes

Pre-taste --- pieces

Pre-taste --- calories

Post-taste --- grams/mls.

<u>Column</u>	<u>Data</u>
1	Card number <u>Card 2</u>
2	Number of study
3	Number of group
4-5	ID number
6-9	Blank
10-12	Apples
13-15	Milk
16-18	Orange Juice
19-21	Hershey
22-24	Fritos
25-27	Chips Ahoy
28-30	Honeycombs
31-33	Cola
34-36	Kool-Aid
37-39	Cheese
40-42	Carrots
43-45	Grapes
46-48	Apples
49-51	Hershey
52-54	Fritos
55-57	Chips Ahoy
58-60	Honeycombs
61-63	Cheese
64-66	Carrots
67-69	Grapes
70-72	Apples
73-75	Milk
76-78	Orange Juice

Post-taste --- grams/mls.

Post-taste --- pieces

Post-taste --- calories

<u>Column</u>	<u>Data</u>	
1	Card number	<u>Card 3</u>
2	Number of study	
3	Number of group	
4-5	ID number	
6-9	Blank	
10-12	Hershey	
13-15	Fritos	
16-18	Chips Ahoy	Post-taste --- calories
19-21	Honeycombs	
22-24	Cola	
25-27	Kool-Aid	
28-30	Cheese	
31-33	Carrots	
34-36	Grapes	
37-39	Apples	
40-41	Milk	
43-45	Orange Juice	Difference Pre-Post-taste --- grams/mls.
46-48	Hershey	
49-51	Fritos	
52-54	Chips Ahoy	
55-57	Honeycombs	
58-60	Cola	
61-63	Kool-Aid	
64-66	Cheese	
67-69	Carrots	
70-72	Grapes	Difference Pre-Post-taste --- pieces
73-75	Apples	
76-78	Hershey	

<u>Column</u>	<u>Data</u>	
1	Card number	<u>Card 4</u>
2	Number of study	
3	Number of group	
4-5	ID number	
6-9	Blank	
10-12	Fritos	
13-15	Chips Ahoy	Difference Pre-Post-taste --- pieces
16-18	Honeycombs	
19-21	Cheese	
22-24	Carrots	
25-27	Grapes	
28-30	Apples	
31-33	Milk	
34-36	Orange Juice	Difference Pre-Post-taste --- calories
37-39	Hershey	
40-42	Fritos	
43-45	Chips Ahoy	
46-48	Honeycombs	
49-51	Cola	
52-54	Kool-Aid	
55-57	Cheese	
58-60	Carrots	
61-63	Grapes	
64-66	Apples	Pre-food preference (scale 1-6)
67-69	Milk	
70-72	Orange Juice	
73-75	Hershey	
76-78	Fritos	

Column Data

1	Card number	<u>Card 5</u>
2	Number of study	
3	Number of group	
4-5	ID number	
6-9	Blank	

10-12	Chips Ahoy
13-15	Honeycombs
16-18	Cola
19-21	Kool-Aid
22-24	Cheese
25-27	Carrots
28-30	Grapes
31-33	Apples
34-36	Milk
37-39	Orange Juice
40-42	Hershey
43-45	Fritos
46-48	Chips Ahoy
49-51	Honeycombs
52-54	Cola
55-57	Kool-Aid
58-60	Cheese
61-63	Carrots
64-66	Grapes
67-69	Apples
70-72	Milk
73-75	Orange Juice
76-78	Hershey

Pre-food preference

Post-food preference (scale 1-6)

Difference Pre-Post-food preference (scale 0-5)
Include sign of difference score, e.g., +01
or -.03.

<u>Column</u>	<u>Data</u>	
1	Card number	<u>Card 6</u>
2	Number of study	
3	Number of group	
4-5	ID number	
6-9	Blank	
10-12	Fritos	Difference Pre-Post-food preference (Scale 0-5)
13-15	Chips Ahoy	
16-18	Honeycombs	
19-21	Cola	
22-24	Kool-Aid	
25-27	Question 1	Yes-001 No-002
28-30	Question 2	Yes-001 No-002
31-33	Question 2a	Pre-treatment interview
34-36	Question 2a	
37-39	Question 2a	use only if answer to Question 2 is No - see code on back
40-42	Question 2a	
43-45	Question 2a	
46-48	Question 2a	
49-51	Question 4	Yes-001 No-002
52-54	Question 4a	
55-57	Question 4a	
58-60	Question 4a	use only if answer to Question 4 is Yes - See code on back
61-63	Question 4a	
64-66	Question 4a	
67-69	Question 4a	
70-72	Question 5	
73-75	Question 5	see code on back for categories
76-78	Question 5	

<u>Column</u>	<u>Data</u>
1	Card number <u>Card 7</u>
2	Number of study
3	Number of group
4-5	ID number
6-9	Blank
10-12	Question 5 See page 8 for categories.
13-15	Question 6
16-18	Question 6
19-21	Question 6 See page 8 for categories.
22-24	Question 6
25-27	Question 7a Yes-001 No-002 Sometimes-003 No response-004
28-30	Question 7b Yes-001 No-002 Sometimes-003 No response-004
31-33	Question 7c Yes-001 No-002 Sometimes-003 No response-004
34-36	Question 8 Yes-001 No-002 Uncertain-003 No response-004
37-39	Question 9 Yes-001 No-002 Uncertain-003 No response-004
40-42	Question 9a
43-45	Question 9a See page 8 for categories.
46-48	Question 9a
49-51	Question 9a
52-54	Question 10 Breakfast-001 Lunch-002 Supper-003 No response
55-57	Question 10a Yes-001 No-002 No response-003
58-60	Question 10b
61-63	Question 10b See page 8 for categories.
64-66	Question 10b End of pre-treatment interview
67-69	Question 10b
70-72	Question 1 from pre-t.i. Yes-001 No-002 No response-003 <u>Post-treatment interview</u>
73-75	Question 10 from pre-t.i. Breakfast-001 Lunch-002 Supper-003 No response-004
76-78	Question 10a from pre-t.i. Yes-001 No-002 No response-003

Question 2a - foods not known and Question 4a - foods eaten at home

001 - Cheese	007 - Hershey
002 - Carrots	008 - Fritos
003 - Grapes	009 - Chips Ahoy
004 - Apples	010 - Honeycombs
005 - Milk	011 - Cola, soda
006 - Orange Juice	012 - Kool-Aid
	013 - all of them
	014 - No response

Question 4 - Post-treatment interview

<u>Low-nutrition, high calories</u>	<u>Pro-nutrition</u>	<u>Non-food (Toys)</u>
001 - Pepsi	004 - Grapes	007 - Close & Play Record Player
002 - Fritos corn chips	005 - Milk	008 - Leggo building
003 - Hershey Bars	006 - Cheese	009 - Spectograph draw set
	010 - Mentioned something not advertised in the commercials	
	011 - Don't remember; no response	

Question 5 - Categories of foods eaten at home and Question 6 - Categories of favorite foods; Also for questions 9a and 10b.

001 - meat	005 - fruits
002 - poultry	006 - dairy products
003 - fish	007 - bread and cereals
004 - vegetables	008 - junk food solids (e.g., chips, candy, et
	009 - junk food liquids (e.g., pop, kool-aid,)
	010 - nutritional drinks (e.g., orange juice)
	011 - everything
	012 - no response
	013 - Yes

1	Card number	<u>Card 8</u>				127
2	Number of study					
3	Number of group					
4-5	ID number					
6-9	Blank					
10-12	Question 10b from pre-t.i.					
13-15	Question 10b from pre-t.i.			use only if 10a is yes-		
				categories on back of p. 7		
16-18	Question 10b from pre-t.i.					
19-21	Question 10b from pre-t.i.					
22-24	Question 2	Yes-001	No-002	No response-003		
25-27	Question 3	Yes-001	No-002	No response-003		
28-30	Question 4					
31-33	Question 4	See back for code				
34-36	Question 4					
37-39	Question 6	Yes-001	No-002	No response-003		
40-42	Question 6a				Very Accurate-001	
					Accurate -002	
43-45	Question 6a	Use only if answer to 6 is Yes -			Moderately Acc-003	
					Inaccurate-004	
46-48	Question 6a				Very Inaccurate- 00	
					No response/OK- 006	
49-51	Question 8	Yes-001	No-002	No response-003		
52-54	Question 8a	Yes-001	No-002	No response-003		
55-57	Question 9	Yes-001	No-002	No response-003		
58-60	Question 10	Every day-001	Ev.other day-002	2x/wk-003		
		1x/mo.-004	Never-005			
61-63	Question 11	Correctly defined both-001	Defined one or other-002			
		Defined neither correctly-003	No response/don't know-			
64-66	Question 12&12a	Completely correct-001	Partially correct-002			
		Incorrect-003	No response-004			
67-69	Question 14	Yes-001	No-002	No response-003		
70-72	Question 14a	Horror or scary-001	Violent-002	Sex-003		
		After certain time-004	can watch anything-005			
		No response-006				
73-75	Question 15					
76-78	Question 15	Code for 15 on next page				

is possibility of recalling 3 commercials

sheet for correct definitions

See attached sheets for scoring system

Scoring System for Question 6a

Number of
Points Mentioned

Very Accurate - 001
Accurate - 002
Moderately Accurate - 003
Inaccurate - 004
Very Inaccurate - 005
No response - 006

1. Kenner's Close and Play Record Player
 - a. Kids start dancing around room as one puts a record on.
 - b. Announcer describes the player as having solid state sound but batteries are not included.
 - c. Kids start singing about how they like the record player and start to use it.
 - d. Announcer comes back on to label it and to say records not included.

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate
2. Leggo Building Set
 - a. Two kids enter the room carrying the set.
 - b. Announcer describes the set as the "Leggo 400 building set."
 - c. Kids hold up some of the parts (e.g., deep groove wheels and helicopter rotor)
 - d. Kids show what can be built (e.g., helicopter, forklift, cranehook, original design)
 - e. Announcer comes back on to say there are many kinds of pieces and hundreds of bricks.

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate
3. Spectograph Drawing Set by Kenner
 - a. A young girl holds up a design as the announcer states that it was done with the Spectograph from Kenner.
 - b. Kids sing about it having 3 different color pins which can be used to make hundreds of designs.
 - c. Shows adults and kids playing with it.
 - d. Announcer repeats the name and manufacturer.

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate
4. Pepsi
 - a. Shows a boy playing baseball; he gets a hit and then he slides into home to win the game.
 - b. Everyone starts singing "Come on taste Pepsi, Have a Pepsi Day" as they are getting into a bus.
 - c. Next it shows everyone going into a restaurant and eating hamburgers
 - d. It labels the audience as the "Pepsi Generation" and to "Come on, have a Pepsi day"

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate
5. Fritos
 - a. A person came on announcing new Frito Brand Lights and shows a boy sitting under a tree eating them and the chips float out of the bag to a girl up above in a tree house.
 - b. Announcer said they are 25% thinner-shows lifeguard eating the chips which have floated out of girl's bag below him.
 - c. Next he states that they are made from whole grain corn and they don't have any preservatives-woman in car hol

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate

chip and it showed the chips floating into the air.

6. Hershey Bar

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate

- a. Showed a group of young boys who had been playing football going into the locker room carrying their and a Hershey Bar.
- b. The announcer called the Hershey Bar the "great American chocolate bar" as a player was eating one.
- c. Next the announcer started singing a song about how the Hershey bar was for everyone around the country as it showed different people eating them (e.g., a girl riding in a hay wagon, a man riding in a golf cart, a girl coming down the steps of a school).
- d. Commercial ended by showing 2 bars and repeating "Hersheys is the great American chocolate bar."

7. Grapes

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate

- a. It began with a girl starting to chew grape gum and then an announcer stated that it contained artificial flavoring and coloring and sugar.
- b. A boy started to eat grape candy and announcer said it had sugar, artificial coloring and flavor, and preservatives.
- c. As a boy was drinking grape soda, the announcer said it had sugar, artificial coloring and flavor, and preservatives.
- d. Announcer said if one wants a grape snack, eat a grape because it's the only "natural grape snack"; it showed grapes.

8. Milk

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate

- a. Egor asked the Professor for the secret of how to build a healthy body.
- b. The Professor said there wasn't a secret and all you needed was to assemble the right ingredients.
- c. As the Professor was listing the right ingredients, it showed sample foods from the milk group, meat group, vegetables and fruits, and bread and cereals.
- d. Professor said to build a healthy body one should eat from each of the 4 groups every day but do it moderately.

9. Cheese

4-Very Accurate
3-Accurate
2-Moderately Accurate
1-Inaccurate
0-Very Inaccurate

- a. A funny looking cowboy came on shooting his cane and then he introduced himself.
- b. He asked everyone if they are hungry after school and he said he is so hungry at times that he could eat a wagon wheel.
- c. The cowboy said when he's hungry he wants a hunk of cheese, and he ran off to kitchen to get some cheese because it's a delicious and nutritious snack.
- d. So when energy is gone or get up and go has got up and went he gets some cheese because it won't spoil his dinner.

Definitions for Questions 11 and 12-12a - Post Interview

- Question 11 - a program is supposed to provide entertainment, enjoyment or information to the viewers and a commercial is an attempt to persuade the public to buy the particular product being advertised.
- Question 12 - a commercial is an advertisement broadcast for mass appeal and for profit; it is an attempt to call the people's attention to a manufacturer's product so as to promote sales
- Question 12a- the purpose is to influence the buying habits of the public; it is designed to persuade people to buy a product; commercials also enable the TV networks to sponsor or support the programs.

Way to evaluate S's response to 12

- 001 - Completely correct - S states that a commercial is both a way to present a product to the public AND an attempt to get them to buy that product.
- 002 - Partially correct - S states that a commercial shows a product to the viewers OR that it tries to persuade them to buy the product.
- 003 - S responds but mentions NEITHER of purposes of a commercial.
- 004 - No response/Don't know.

<u>Column</u>	<u>Data</u>		
1	Card number	<u>Card 9</u>	131
2	Number of Study		
3	Number of Group		
4-5	ID number		
6-9	Blank		
10-12	Question 15	<u>Code for 15</u>	
13-15	Question 15	Cheese- -001	Hershey candy-007
16-18	Question 15	Carrots -002	Fritos -008
19-21	Question 15	Grapes -003	Chips Ahoy- -009
22-24	Question 15	Apples -004	Honeycombs -010
25-27	Question 15	Milk -005	Cola/Soda -011
28-30	Question 15	Orange juice-006	Kool-aid -012
31-33	Question 15	All of them - 013	
34-36	Question 15	No response - 014	
37-39	Question 15		
40-42	Question 15		
43-45			
46-48			
49-51			
52-54			
55-57			
58-60			
61-63			
64-66			
67-69			
70-72			
73-75			
76-78			