

SOME FACTORS AFFECTING THE FOOD PURCHASES OF FAMILIES
WITH PRESCHOOL CHILDREN

by

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INTRODUCTION

The preschool years are of great consequence in the development of food habits by children. The food purchasing patterns of mothers of preschool children are a major contributing factor in the development of their children's food consumption practices.

Advances in the food processing industry, as well as recent changes in our social pattern, are affecting the types of foods purchased and consumed by families with preschool children. Also, child feeding practices have changed and nutrition has been the recipient of greater emphasis in lay literature. However, the effect of these and other factors on the food habits of young children is not known. In the present investigation the food buying practices of 17 families with preschool children attending Kansas State University Nursery School were evaluated in terms of nutritional needs, the family social class, the educational level of the parents, and the nutritional knowledge of the mother.

REVIEW OF LITERATURE

The Interview

Cannell and Kahn (1953) stated that the adequacy of a method for gathering data is judged in terms of validity and reliability. The interview is necessary to obtain information that only the individual being interviewed can give, but it has

limitations. Involvement of the respondent in the data given, inability of the respondent to give certain types of information (such as character judgments of himself), and memory bias were pointed out by these authors as possible causes of invalid data. However, the skills of the interviewer, the adequacy of the interview schedule, and the knowledge of the analyst can compensate to some extent for the bias, memory failure, and inexpertness of the person interviewed.

Devising an Interview Schedule. According to Cannell and Kahn (1953), an integral part of putting a research project into operation is the construction of the interview schedule. These authors stated that the interview schedule or questionnaire, has a double purpose. First, it must translate the objectives of the research into concise questions. The answers to these questions will supply the data needed to test the hypotheses set by the objectives. The second function of the questionnaire is to aid the interviewer in motivating the respondent to supply the necessary information.

Types of Questions Used. A questionnaire should be respondent-centered. Cannell and Kahn (1953) noted that no assumption as to the amount of information a respondent possesses should be made. Each question should correspond to the respondent's current level of information. A respondent must not be placed in a situation where he would feel discredit at being unable to adequately answer a question. No question should force the

individual being interviewed to give a socially unacceptable response. Questions should be limited to a single idea and worded so that they do not suggest an answer.

There are two basic types of questions an interview may contain (Cannell and Kahn, 1953, and Goode and Hatt, 1952). One is the open question to which a respondent replies in his own words. The second type is termed a closed question to which the answer most nearly relating to the respondent's opinion is selected from a series of predetermined categories. The closed question is most adapted to circumstances in which there is only one frame of reference from which the individual being interviewed can respond. The categories selected should fall within a known range of possible responses. Concise choices should be available within this range.

Cannell and Kahn (1953) discussed the many advantages to the open question. These arise in that the respondent is encouraged to word his answer as he wishes. Information is gained with this procedure that cannot be obtained with the closed question. Using the open question, the interviewer can determine more readily if the respondent fully understands the question. Though more information is obtained with the open question, the effective use of this type of question requires more knowledge and technique on the part of the interviewer than the closed question.

Arrangement of the Questions. It was noted by Cannell and Kahn (1953) that attention also must be given to the arrangement

of questions in the interview schedule. Questions should be arranged so that they are in logical sequence to the respondent. The succession of questions may be determined by what is termed the "funnel approach" (Cannell and Kahn, 1953). This is a procedure of moving from the most general questions to the most specific. Goode and Hatt (1952) stated that complex questions should be placed toward the center of the schedule to avoid "informant fatigue."

Choice of Language. Cannell and Kahn (1953) reported that the basic criterion for the choice of language in devising a questionnaire should be that the vocabulary offers maximum efficiency in communicating ideas between the interviewer and the respondent. The words used should be within the range of vocabulary of those being interviewed. Colloquialisms and cliches of the respondents should be known and used advantageously or avoided. The evolution of a topic from one question to another must be reasonable and logical to both the interviewer and the respondent.

Obtaining Food Consumption Data. According to the Food and Agriculture Organization* (1953), the inventory method is the most accurate method of obtaining information on food consumption. With this method an inventory is taken of the food on hand at the beginning and at the end of the study. Also, a record is kept of all food brought into the home during the period of study. However, the FAO (1953) pointed out that food

*Hereafter abbreviated as FAO

lists are much faster and less expensive to undertake. When food lists are used, descriptive and quantitative information on each food item consumed by the household is recorded on a detailed food check list. In both methods data are obtained on the amounts of different foods consumed over a period of a week by a household. The primary difference between the two methods is that with food lists there is no direct measurement and the amounts of foods consumed are estimated, usually by the homemaker.

Pretesting the Interview Schedule. Regardless of how meticulous the research worker has been in preparing the questionnaire, it is necessary that the schedule be tested with trial interviews before beginning the actual project (Cannell and Kahn, 1953). Often several pretests are needed to obtain the final, most valid schedule. Also, an analysis should be made to ascertain the extent to which the questionnaire is respondent-centered.

Techniques of Interviewing. According to Adams (1958), the interview should be conducted in a quiet, comfortable place. It should be a location which is convenient for the person being interviewed (Bryan and Anderson, 1960). Adams (1958) also stated that the respondent should be interviewed alone.

Atmosphere of the Interview. The interviewer should make the respondent feel that he is genuinely interested in the methods followed or the information given by the respondent (Bryan and Anderson, 1960). Goode and Hatt (1952) stressed the

importance of allaying any anxiety on the part of the respondent by assuring him that there are no difficult questions or right or wrong answers. Adams (1958) noted that it was essential that the respondent understand that the interviewer is doing an important job. This author pointed out the necessity of eliminating definite right or wrong answers. The interviewer should be neutral in appearance and flexible in approach (Adams, 1958).

Three intrinsic parts of an interview as postulated by Goldfaden (1958) were empathy, insight, and the setting surrounding the interview. To develop empathy, one must explore what the respondent is saying and become an active listener. "Active" listening entails a continuous analysis of what the other person is saying and how this applies to the interview situation. In developing insight, the interviewer should ask honest questions of himself as to why he responds to the individual being interviewed as he does. Another method of deepening one's insight is to discuss the interviews and the noted reactions with a competent consultant.

Manner of Questioning. It is important to explain the purpose of the survey to the respondent (FAO, 1953). As stated by Adams (1958) and Cannell and Kahn (1953), the interviewer should introduce himself and explain the purpose of his call. The group conducting the survey as well as the subject and purpose of the survey should be stated to the respondent. Each person interviewed should be informed as to how he was chosen as a participant. Also, the confidential nature of the interview should be stressed.

Questions should be asked as they appear on the questionnaire. If misunderstood, a question should be repeated, but not reworded (Cannell and Kahn, 1953). Bryan and Anderson (1960) stressed that all questions should be asked of all interviewees in the same order. These authors recommended that the interview be divided into sections and each section reviewed as it was finished to be sure all the information was correct. Cannell and Kahn (1953) also recommended this practice. Probe questions may be used for completion or clarity, but they should not suggest answers (Adams, 1958).

Manner of Recording Responses. Adams (1958) recommended that responses be recorded word for word as they are given. Goode and Hatt (1952) pointed out that the interviewer should ask the respondent to repeat important points so that they can be recorded accurately. Adams (1958) suggested that the questionnaire be checked immediately after the interview for clarity, completeness, and legibility.

The interviewer must consider himself and his way of thinking along with the respondent's words to prevent the introduction of distortion and bias (Cannell and Kahn, 1953). Several sources of interviewer bias were noted by Adams (1958). They were failure to discriminate between acceptable and unacceptable answers, failure to record responses accurately and completely, and suggesting responses.

Technological Advances in the Food Industry

Increased Food Supply. Eppright (1947) discussed improvements in transportation that have affected the total food marketing picture during the last 50 years. Improvements in refrigeration and the development of refrigerated railroad cars have been responsible to some degree for the large increase in the use of citrus fruits since the early 1900's. The development of highways has increased the distribution and hence the use of milk. Eppright (1947) predicted that air transportation would indirectly leave its imprint on the food habits of America by enabling many fairly familiar foods to gain greater acceptability because they will reach the consumer in a higher state of quality.

Gartner and Kolmer (1961c) observed that the organization of the retail market, which has undergone many changes in the last 20 years, also affects consumer marketing patterns. An increase in the number of items handled in retail food stores and the development of self-service retail outlets resulted in a large increase in volume of output per store. The supermarkets which have resulted have concentrated food retailing into fewer retail units, each handling a much broader product line than previously.

Convenience Foods. According to Gartner and Kolmer (1961c), it is necessary to recognize changes that have occurred in the food market as they have a direct effect on the actions of and services available to consumers. Gartner and Kolmer (1961c)

stated that Americans spent approximately 20 billion dollars for food and food services in 1941; in 1953 they spent 60 billion; in 1959 they spent about 77 billion for food and food services. From 1941 to 1947, the boom in food purchasing was primarily the result of an increased demand for better quality basic food. Since 1947, much of the increased spending has been for more highly serviced and processed food.

Baker (1961) stated that convenience is one aspect of functional value. This concept of convenience has become so vital to our technological society that homemakers no longer rationalize the use of "convenience items" such as dehydrated foods, frozen foods, and commercially prepared mixes. Convenience items now are selected without a predetermined alternative use for the effort or time saved. In certain groups, one may select a convenience item in order to avoid criticism from one's contemporaries.

There may be, in some circumstances, a conflict between a functional value such as convenience and a value like self-esteem. Self-esteem derived from creativity is an important satisfaction obtained from homemaking. One area with many creative possibilities is the area of meal preparation and service. A consumer study conducted in Harrisburg, Pennsylvania (Baker, 1961) indicated that the conflict between status or self-esteem values and convenience eventually may be resolved in favor of convenience.

Frozen Foods. The frozen food industry began in the early

1900's but for full exploitation required the development of mechanical refrigeration (Diehl, 1961). According to Diehl (1961), probably the first reference to the use of mechanical refrigeration in freezing was made in a United States Department of Agriculture circular in 1907. Today the frozen food industry has an annual market value of three billion dollars.

As reported by Gartner and Kolmer (1961c), between 1950 and 1958, the production of frozen fruit increased from 483 million to 1.37 billion pounds. In 1958 approximately 16 per cent of all fruits sold on United States markets was frozen. Concentrated orange juice has been the biggest single gainer in the frozen food industry. This product increased from 226 thousand gallons in 1945 to almost 83 million in 1958. Fresh orange consumption per capita dropped from 41.5 pounds in 1947 to 20.1 in 1959 (farm-weight equivalent). Canned orange juice consumption per capita dropped from 4.11 pounds in 1947 to 2.66 in 1958.

Other frozen foods also have increased in usage. Of all vegetables used in 1939, less than one per cent was frozen. In 1958 the use of frozen vegetables had increased to eight per cent (Futrell and Kolmer, 1961). Gartner and Kolmer (1961c) pointed out that in 1958, 95 per cent of all turkeys sold on the United States markets were ready-to-cook and frozen. However, the production of frozen fishery products increased only from 287 million to 322 million pounds between 1950 and 1958. This

is an increase of approximately 12 per cent.

Mixes and Instant Foods. The flour mixes industry has grown tremendously since 1947. Sales of these mixes increased between 1947 and 1954 from 78 million dollars to 254 million dollars (Kolmer and Gartner, 1960). Primary products such as cake and biscuit mixes accounted for 76.7 per cent of the total value of shipments in 1954. Secondary products such as cereal preparations and grain-mill products accounted for 29.2 per cent. Cake mixes led all other types of mixes in value of shipments in 1954.

The use of whole milk solids increased from 73 pounds per capita in 1940 to 80 in 1945. The consumption leveled at 75 pounds in 1947 and has remained approximately at that figure until the present (Kolmer et al., 1960). The quantity of non-fat dry milk solids used between 1940 and 1946 increased from 40 to 50 pounds per capita. The level of consumption decreased to approximately 48 pounds per person in 1948, and has remained at that level up to the present.

Some Current Child Feeding Practices

Essentials of a Balanced Diet. Results of Robert's studies, as reported by Martin (1954), indicated that the Recommended Dietary Allowances as set up by the Food and Nutrition Board of the National Research Council may serve as a safe guide in planning children's diets. These results were based upon the 1953 recommended allowances. The 1958 revisions recommended 100 more

calories per age group, 0.1 mg. more of thiamine per age group, and eight to 11 mg. equivalents of niacin rather than six to eight mg. of niacin per age group. Recommendations for all other nutrients were the same.

For the normal child to gain excessive weight on a simple, wholesome, and adequate diet is rare, according to Martin (1954). Usually the diet of the overweight child is overbalanced with fats and sweets, which tend to lessen the amounts of protective foods (such as are found in the Basic Seven and Basic Four food groups) that are eaten and make the diet inadequate in essential nutrients.

Theories of Child Feeding. According to Hewitt and Aldrich (1946), the growth rate of infants is not constant. The growth rate, which is rapid during the first six months of life, slows at about one year of age and the appetite lessens. When this occurs, the child should not be expected to maintain his former food intake as was stressed by the "force feeding" concept of child feeding about 1900. According to this concept, an infant was fed three to four ounces of formula every three to four hours (Lapin, 1954). This rigid time schedule extended into the preschool stage of life with a definite number of meals daily and a specific time for each meal.

In reaction to the "force feeding" concept, the "demand" theory of child feeding was introduced in the 1920's. Under the demand theory, infants were fed when they cried or showed other signs of hunger (Lapin, 1954). In the case of preschool

children, advocates of the demand concept instructed parents never to urge their children to eat, to leave them alone at meals, to teach them to feed themselves, to allow considerable range in choice of food, and to avoid emotional conflicts at meals (Martin, 1954).

At present, a modified self-selected diet is recommended for children (Gutelius, 1948; Martin, 1954; Lapin, 1954). This practice enables a child to have a voice in food selection, yet stresses regular balanced meals. Such a diet eliminates the extreme permissiveness and lack of discipline which developed with the "demand" concept of feeding. It was the opinion of Gutelius (1948) that children cannot be allowed complete freedom in food selection. A homemaker cannot prepare a wide variety of foods at irregular hours. The child should be served three regular meals unless he asks to eat early. This author stated that between meal snacks could be offered if they consisted of healthful, nutritious food.

In further contrast to the "force feeding" concept, Hymes (1949) stressed the necessity of realizing differences among children. It is important to acknowledge the child's feelings and build good attitudes in regard to eating practices. Children will eat at mealtime if allowed to do so (Anon., 1949). Mothers must be convinced the amount of food their children need depends upon each child's rate of growth. The child should be allowed to determine how much he wants and help

himself. His likes and dislikes should be respected (Anon., 1949).

Introduction of New Foods. Ideally, through gradual extension of the diet, by the time a child is two years old he has learned to know and like most of the common foods he will eat the rest of his life (Martin, 1954). This is true if the feeding experiences of his first year have been satisfying ones. By two years of age, he will have adjusted to the three-meals-a-day family schedule, though he may not always eat with the family.

The diet of a preschool child as outlined by Martin (1954) is essentially the same as that of late infancy, except the quantities are increased and the foods are not strained. The varieties of cereals, vegetables, and fruits allowable are almost unrestricted. Some of the cereals, milk, and eggs may be served as simple desserts. Adequate meals may be prepared for all the family from essentially the same menu by varying the size of the servings.

Proudfit and Robinson (1957) pointed out that the preschool child may overemphasize carbohydrate foods because they are easy to chew. It is at this time, especially, that parental guidance becomes important in establishing good dietary habits. If chewing is difficult for the child, meats should be ground or chopped. Since children are susceptible to gastro-intestinal upsets, fried foods, rich foods, and highly seasoned foods should not be included in their menus.

Food Likes and Dislikes of the Preschool Child

Likes. As noted by Ilg (1948), some children show acute taste discrimination at 21 months. Taste discrimination will affect their acceptance or non-acceptance of various foods. Ilg (1948) stated that the vegetable most accepted by two year olds was carrots. Beets ranked second in acceptance. The high color of beets and carrots appeared to be the basic reason for their acceptance. Butter and cheese were favored highly by this age group. At two and one-half years, children discover that chewing is fun and accept crispy bacon readily. Food sprees are common during the preschool years; children may eat a specific food, day in and day out, for weeks. At three years of age, desserts and sweets are desired more than other food groups studied. Raw vegetables and green vegetables increase in acceptance at this age. At four years the occurrence of food sprees is even greater than at two or three years of age.

The work of Mirone et al. (1956) agreed with the findings of other workers in that the nursery school children studied (three and four year olds) liked sweets and desserts. Larger amounts of desserts were eaten in comparison to other food groups. Dessert waste was almost nil.

Dislikes. As a general class, vegetables are not well accepted by children (Martin, 1954 and Mirone et al., 1956). Except for white and sweet potatoes, Mirone et al. (1956) noted that the waste in vegetables was high. The nursery school group

studied accepted fruits more readily than vegetables. Liver was liked the least of the meats served.

As noted by Ilg (1948), the four year old child may go on food strikes refusing to eat at all. Proudfit and Robinson (1957) reported that a child may refuse an entire meal because the portions are too large, the food too bland, monotonous in color, stringy or gummy in texture or too hot or too cold. Mixed foods, such as stews or casseroles, are not well accepted by young children. This dislike of mixed foods was pointed out also by Ilg (1948) and Martin (1954).

Effect of Food Likes and Dislikes of Others

Father. Bryan and Lowenberg (1958) studied the influence of the father on the food preferences of young children. The food groups involved were vegetables and fruits, fats, breads and cereals, and protein foods. It was found that young children liked vegetables least of the food groups studied, whereas the fathers liked bread and cereals the least. A food preference correlation for the children and their fathers was found only for vegetables. This was significant at the five per cent level. It was noted that 89 per cent of the mothers did not serve, or served infrequently, foods that the fathers disliked. Thus, the main influence of the father appeared to be in the limitation of the variety of food offered to the child.

Martin (1954) pointed out that negligence on the part of the parents in including vegetables in the family meals is

probably the chief reason that children dislike vegetables. Early in life, vegetables should be included in the diet so that children will become accustomed to their flavor.

Others. By five years of age, children come under the influence of social pressure. They observe others and are influenced easily by group patterns (Rabinovitch and Fischhoff, 1952). Eppright (1947) reported a study by Duncker of London, England, in which nursery school children past the age of two and two-thirds years tended to follow others in their selection of food. The younger child followed the example set by the older child more often than the reverse. This tendency was amplified when the children involved were good friends. There was no marked trend by the children to imitate the food selection of adults.

In a comparison of a group of children who were feeding problems with a normal group, McCarthy (1935) found striking difference in the feeding practices of the two groups. The non-problem group received less variety in foods, fewer carbohydrate foods and used more eggs and more fruit than the problem group. The problem group showed a lower percentage of liked foods, but a higher percentage of foods to which they were indifferent or disliked. McCarthy (1935) observed that as the age of the 48 children increased from two to seven and a half years of age, a general indifference to food developed. Strong likes and strong aversions to foods decreased. This trend was much more evident with the problem group. About 35 per cent of

the food aversions of the children were associated with food aversions of the family members. The feeding problem group were influenced by the attitudes of others more than the non-problem group. There was a much higher percentage of identical food aversions among siblings than between children and parents in both groups.

Other Factors Affecting the Food Intake of the Preschool Child

Physical Condition. A child's physical condition has a great effect on his food intake. Jeans (1939) reported that such physical conditions as constipation, teething, fatigue, and allergies affect the food intake of a child. The common cold, teething, infections (especially of the upper respiratory tract), gastro-intestinal disturbances, and various food idiosyncrasies were listed by Aldrich (1926) as physical conditions that may alter a child's food intake.

Eppright (1947) pointed out that the degree to which the selection of food is influenced by the chemical state of the body is not known. Hunger, the most basic drive for food, has been associated with the contractions of an empty stomach. These may be initiated by the blood level of substances such as glucose and hormones.

Also, Eppright (1947) noted that people differ in the intensity of their sensations of taste. Generally, those individuals with a keen sense of taste have better appetites.

Food acceptance is influenced further by the ease with which the sense organs are dulled or fatigued.

Justice et al. (1946) studied the effects of age, activity, rate of growth, sex, and season on the food intakes of 26 nursery school children. As the age of the children increased, the amounts of food ingested increased. More of all the nutrients were consumed by boys than by girls of the same age. Winter and spring intakes were less than those of the prior fall. The results were inconclusive as to the effects of activity and rate of growth on the food intakes of these children.

In contrast, Mirone et al. (1956) found that sex and day of the week had no significant effect on the quantity of food ingested by nursery school children at their noon meals. However, the correlations and regressions for milk and solid food were significant for the girls. These were not significant for the boys.

Psychological Condition. The psychological condition of a child also affects his food intake. Emotional problems over matters of learning, dependence, authority, and lack of choice were stressed by Stuart (1949) as upsetting the eating habits of the young as well as their food utilization efficiency. Aldrich (1926) pointed out that a new baby in the household may bring about poor appetite in children.

Mental state has an important effect on food selection. Eppright (1947) reported that there is a direct relationship

between food aversions and neurotic tendencies. Memory and association were cited as important factors in an individual's reaction to food.

Wagner (1954) stated that a food habit results from repeated experiences with specific foods, and an establishment of a preference for those to which one is accustomed. It is the mental pattern created around eating and the way food is presented to a child that will influence an active like or dislike of the particular food. This author noted that a relaxed atmosphere results in the formation of healthy eating habits. Weng (1954) stressed guiding a child to accept eating as a pleasant experience without exaggerated emotional reactions.

The moral issue over food, postulated by Margaret Meade, was reported by Wagner (1954) and Rabinovitch and Fischhoff (1952). When foods are classified as right or wrong, food selection becomes a moral issue. Wrong foods are made even more desirable, simply by being wrong.

Rabinovitch and Fischhoff (1952) observed that food may symbolize comfort and security. The unhappy child with conflicts may feel a need for food between meals to substitute for something missing in his relationships.

Eating can become a powerful weapon in a child's relationship with his parents (Rabinovitch and Fischhoff, 1952). Negativism, due to disturbances in parent-child relationships, frequently is manifested by a child's refusal to eat or by lack of cooperation at mealtime. A guilt-ridden or depressed child may

refuse to eat as an unconscious expression of self-punishment, as he has associated food with life and well-being.

Method of Preparation. Preschool children prefer simple unmixed foods (Martin, 1954 and Wagner, 1954). It was stated by Wagner (1954) that small portions encourage appetites. Interest may be stimulated in the child by allowing him to help in the more simple methods of preparation. Children are attracted to finger foods as they can associate color and texture with flavor and these foods are easy to handle (Wagner, 1954).

Dudley et al. (1960) conducted a study on the effect of methods of vegetable preparation on the choices and consumption of these vegetables by preschool children. Four methods of preparation were used for each vegetable. Green beans and asparagus, representative of green vegetables, were prepared au gratin, creamed, buttered whole, and buttered pieces. The yellow vegetable group was represented by carrots and rutabagas. The methods of preparation were buttered julienne, buttered grated, raw, and creamed. The results of this study showed that the children preferred the raw preparations of carrots and rutabagas to any of the cooked forms. Of the green vegetables served, the au gratin preparation was preferred to the creamed vegetables. However, there were great variations among individuals in their choices and in the consistency of their choices. The conclusion drawn was that one must be careful in making general statements about all children preferring or disliking certain methods of food preparation.

Nutritional Knowledge and Practices of the Mother

Relationship to Age. In a study by Young et al. (1956a, 1956b, 1956c, 1956d) the 646 mothers were divided into three groups according to their ages. The youngest group was under 40 years of age, the middle group ranged from 40 to 60, and the oldest group was over 60 years of age.

It was found that the youngest homemakers had the greatest nutritional knowledge. However, the differences between age groups were not great when related to the actual practices of the homemaker in feeding her family. As the age of the homemaker increased, the use of milk by the family decreased. The youngest group admitted more problems in meal planning than the older groups. The youngest subjects were more desirous of help with their problems than the members of the other two groups. The younger homemakers and those with more education considered foods that were "good" for them in planning their meals more often than the older or less educated groups.

Dunsing and Bowles (1961) divided the subjects of their study into three age groups; those under 30 years of age; those between 30 and 50, and those over 50. The oldest women placed the greatest emphasis on serving fruit at breakfast, the middle group was second in emphasizing fruit at breakfast, and the youngest group third. The groups ranked in the same order as to the importance placed upon serving fruits at lunch. The oldest group also placed the most importance on serving vegetables at lunch. The middle age group accented most the service

of vegetables at dinner; the youngest group was second; and the oldest was third. Two vegetables plus potatoes were served most by the middle age group. The youngest group usually served one vegetable plus potatoes.

The older subjects used the most canned fruit and the least canned vegetables. The middle age group ranked second in the use of both of these items. The youngest group used the most frozen vegetables and frozen fruits. The middle age group was intermediate in their use of these commodities.

Relationship to Formal Education. Young et al. (1956b) observed that the level of formal education and the nutritional knowledge of the homemaker were related directly. Of the 646 homemakers they interviewed, one-third "had studied about what to eat". Three-fourths of these studied foods in school. The subjects knew more of the nutritional value of meat, fish, and poultry, and of potatoes-or-other-fruits-and-vegetables than other food groups in the diet. They did not discriminate between nutritional values in the different types of fruits and vegetables. There appeared to be a need for additional knowledge in the areas of ascorbic acid foods, foods which are good sources of carotene, the adult need for milk, and the nutritional value of cereals, breadstuffs, butter, and fortified margarine.

As the educational level of the women interviewed by Young et al. (1956c) increased, the adequacy of the homemaker's

feeding practices generally were better. The differences between those who had studied foods and those who had not were not as pronounced when the actual family feeding practices were compared. However, the food service practices of those who had studied foods were better qualitatively and quantitatively. All homemakers in this study fed their families, at least qualitatively, better than would be anticipated from their individual knowledge of nutrition. Nevertheless, the least well known food groups also were used the least. More meal planning was done in advance by homemakers with a higher level of education than by those with a lower level of education.

In a California study of 680 households conducted by Dunsing and Bowles (1961), it was found that regardless of educational level, the majority of families served fruit only at breakfast. The group of subjects with an elementary education stressed serving fruit at lunch and/or dinner more than any other educational level group. The group with a college education ranked second and the high school educated subjects ranked last. The subjects having a college education emphasized the service of vegetables at dinner more than the other groups. The high school educated group ranked second in this characteristic and those with an elementary education were last. The group with the high school education usually served two vegetables plus potatoes. The subjects of the other two groups preferred serving one vegetable plus potatoes.

The subjects with an elementary education stressed the

use of potatoes in the family's meals more than the subjects of the other groups. Frozen vegetables were used the most by the group with a college education. However, fresh fruits and vegetables were used more by homemakers of every group than were the frozen, canned, or dried forms.

Relationship to Family Income. No consistent pattern in the relationship between nutritional knowledge and family income was found by Young et al. (1956c, 1956d). Increases in income were not consistent with increases in adequate feeding practices. The lower income group did the most day to day shopping. The husbands of this group participated more in the food shopping. The homemakers of the low income group had the greatest interest in finding help with low cost food substitutions. It was concluded that income level was the factor which had the biggest influence on meal planning.

Dunsing and Bowles (1961) noted that expenditures for fruits and vegetables increased as income increased and as the size of the family increased. The low income group stressed the use of potatoes more than the other groups. The high income group emphasized the use of frozen vegetables.

Decision Making in Food Selection

Research and observation both indicate that the majority of consumers do not randomly select an item the first time it is bought. Usually, they go through a process of careful selection called "decision making" (Gartner and Kolmer, 1961a).

Once an item has been purchased by a consumer, he may continue to buy it without going through the process of decision making again, except at infrequent intervals. However, in most cases, the initial purchase involves some decision making.

Steps in Decision Making. There are four steps involved in the decision-making process. The first step, according to Gartner and Kolmer (1961a), is to search for all the total available alternatives through everyday living and planned searching. Secondly, the relevant alternatives must be determined. The family's value system and, perhaps, limited family resources will influence these. The third step is the appraisal of the relevant alternatives. This involves an estimation of the satisfaction or usefulness that can be obtained from each alternative. The last step is to make the final decision.

The Effect of Time. Among consumers, the time available for general family activities and decision making varies (Gartner and Kolmer, 1961a). The working woman has less time than the woman who does not work. Such a time limitation may force an individual to lessen the number of relevant alternatives to be considered. Limited time may reduce the efficiency of the seeking and evaluation portions of the process of decision-making. It may limit the number of alternatives which can be considered. Also, it might limit the amount of knowledge the consumer possesses about the alternatives. Finally, time limitations may not allow refined evaluations of the

alternatives. In some cases, the phase of appraising the alternatives may be skipped altogether.

The Effect of Energy. Energy was defined by Gartner and Kolmer (1961a) as the capacity for doing work and overcoming resistance. They believed that the number of relevant alternatives selected is influenced partially by the amount of energy that a person possesses. An individual who lacks energy may allot a minimum of time to seeking alternatives. Thus, the final number of alternatives to be considered will be limited.

The Effect of Knowledge. As noted by Gartner and Kolmer (1961a), such factors as a family's awareness of future price changes, price differences among stores, differences in quality among commodities and services, sources of information, and methods of appraisal are encompassed by knowledge. A lack of knowledge of these factors will limit the range of alternatives considered by the family. This lack of knowledge may inhibit the family from attaining maximum satisfaction.

Gartner and Kolmer (1961a) pointed out that knowledge of sources of information serves two primary purposes. It aids the consumer in increasing his range of relevant alternatives, and it is helpful in providing information which will increase the efficiency of the evaluation process in decision making.

The Effect of Family Skills. A family's ability to produce goods and services that can be substituted for goods and services available on the market differs in amount and quality

(Gartner and Kolmer, 1961a). Production of goods and services in the home may cause the family not to buy certain goods and services that are found on the market.

The Effect of the Family Life Cycle. Changes occur in the size of food and other expenditures as a family moves from one phase of the life cycle to another. These changes are attributed to changes in the physical and psychological needs of the family as well as changes in the family income (Gartner and Kolmer, 1961a).

The Effect of External Forces. External forces also affect a family's spending pattern. Advertising gives information and, to some measure, social pressure to behave in a certain manner. Action through legislation by regulatory agencies of the government provide protection for consumers. The scope of the process of decision-making is broadened for individual families by credit institutions. These institutions make possible the possession of more goods at an earlier date (Gartner and Kolmer, 1961a).

Purchasing and Consumption Patterns of Consumers

Periodic examination of food consumption of population groups is necessary for many reasons--for the administration of programs affecting food supply and consumption, for educational programs designed to improve food habits, and for private concerns interested in improving the marketing of food.

According to the 1955 United States Department of Agriculture* Household Food Consumption Survey (1956a), the largest food group expenditure in all United States household food budgets was the expenditure for meat. This accounted for 25 per cent of the total. Second was dairy products (excluding butter). This expenditure was 15 per cent of the total. Third was cereal and bakery products with 12 per cent and last was vegetables with 11 per cent. This pattern was similar for all regions and urbanizations, except farm families. For these families, in most regions, expenditures on cereal and bakery products usually replaced dairy products (excluding butter) as second in percentage of total food expenditures (USDA, 1956a).

North Central Region. The food purchasing habits of residents in the North Central region were very much like those of residents in the United States as a whole (USDA, 1957b). The average amounts of calories and the eight nutrients studied that were brought into the North Central households were sufficient to meet the recommended allowances. However, not all households met the specified allowances for calcium. Twenty per cent consumed less ascorbic acid than was recommended. A slightly smaller percentage consumed less vitamin A, riboflavin, and thiamine than recommended. Ten per cent or less were low in the consumption of iron, protein, and niacin.

The greatest share of the food dollar of the North Central

*Hereafter abbreviated as USDA.

region was spent on meat, poultry, and fish. The second largest proportion of the consumer's food dollar was spent on fruits and vegetables, excluding potatoes and sweet potatoes. Next in the food budget was milk and milk products (USDA, 1956b). Families in the North Central region consumed more meat, dairy products, canned vegetables, potatoes, non-alcoholic beverages, and sugar than those in any of the other three regions. This region ranked second in the use of dried peas and beans, and third in the consumption of all forms of vegetables, eggs, and poultry. The smallest market for fishery products was found in this region.

According to Income. An increase in income among very low income families results in the purchase of more goods; that is, an increase in the actual amount of food purchased. Under these circumstances, there is no appreciable increase in the purchase of services related to food (Gartner and Kolmer, 1961b). There is a shift toward more "preferred" foods as the income increases in middle-income groups. Additional variety in food and the purchase of more services are other trends with increased income in this group. Among high-income groups, a larger income probably has its greatest effect on luxury items other than food, as most necessities of life have already been satisfied (Gartner and Kolmer, 1961b).

The USDA (1957b) found that in all regions the high-income families had better diets than the families with low incomes. Ascorbic acid was the nutrient that showed the most marked

increase as family income increased. Vitamin A also increased with family income. The amounts of protein, riboflavin, and iron rose moderately with income until approximately the 6,000 dollar level and then tended to decrease. There were larger amounts of the other nutrients in the diets of households with higher incomes than the lower levels. The differences were the most noticeable between the low- and middle-income groups. The average number of calories changed relatively little with income.

More meat was consumed by high-income groups than by those with low income (USDA, 1956a). Pork and beef consumption increased with an increase in income up to the middle income level. Then the consumption of beef remained fairly constant, whereas pork consumption declined noticeably. As income levels rose, poultry consumption increased.

Also, the USDA (1956a) noted that at high incomes, the consumption of canned vegetables per person sharply declined. However, there was an increased consumption of fresh vegetables. High-income groups used the most frozen foods, regardless of type. Potatoes and sweet potatoes were used most by low-income groups. More fresh fruit was used by high-income households than by those with low income. The middle-income group used the most canned fruit.

Fresh fluid milk was used the most by the middle-income group (USDA, 1956a). As income increased, the use of butter rose sharply and the use of margarine declined slightly. There was an increased use of salad oils at higher income levels.

According to Place of Residence. The differences between the diets of rural and urban households were less marked according to the 1955 survey than they had been previously. Yet there were considerable differences (USDA, 1957a).

The farm diets contained more calories than the urban diets as a result of a greater consumption of milk, grain products, fats, oils, and sugar. As the milk consumption increased, the calcium and riboflavin content of the diet increased. The rural households consumed diets that were adequate in all the eight nutrients studied except vitamins A and C. According to the USDA (1957a), 30 per cent of the total quantity of the nutrients consumed by farm households were from home produced food.

Rural nonfarm and farm families ate more eggs, grain products, fats and oils, potatoes and sweet potatoes, and sugars and sirups than urban households (USDA, 1956a). The direct consumption of sugar was greatest for rural nonfarm families and lowest for urban families. Rural nonfarm households ranked second in the use of frozen vegetables and farm households were third. Urban households in the low- and middle-income groups used the most canned vegetables (USDA, 1956a).

In general, urban households ate more meat, poultry, fruits, and vegetables in 1955 than did farm families (USDA, 1956a). Urban families spent considerably more of their food money on food outside the home than did rural nonfarm and farm families. More money was spent on chicken and eggs by urban

families than farm families. Coffee was the leading beverage used by urban and rural nonfarm families; but it was second to fluid whole milk among farm families. At this time roasted coffee was preferred to instant (USDA, 1956a).

PROCEDURE

Choice of Subjects

The persons interviewed in this study were homemakers with children attending the Kansas State University Nursery School during the fall semester, 1961. Permission was obtained from the Department of Family and Child Development before these homemakers were contacted.

Preparing the Interview Schedule

Before selecting the questions that the interview schedule contained, background material and other interview schedules were studied (Young et al. 1956a, 1956b, 1956c, 1956d; Valentin, 1959; Cannell and Kahn, 1953). Questions were selected to include the topics of general family description, marketing practices, and nutritional knowledge of the mother. Both the open and closed type of question as described by Cannell and Kahn (1953, p. 3) were used. The questions were arranged using the "funnel approach" noted by Cannell and Kahn (1953, p. 4). General questions concerning family description began the interview. The final section of the interview schedule was a food check list

which covered recalled family food purchases. To aid in devising a complete food check list, various diet manuals and food lists were consulted (Bowes and Church, 1956; Institute of Home Economics, 1960; Watt and Merrill, 1950). The interviewer also made several trips to local supermarkets to check food items found on the shelves. The food list was divided into the following sections: meat, fish, poultry, and eggs; vegetables; fruits; milk, cheese, and ice cream; bread, cereals, and nuts; bakery products and mixes; butter, margarine, and oils; baby and junior foods; and miscellaneous. A copy of the interview schedule containing the food check list may be found in the Appendix (pp. 70-90).

After the schedule was completed, an interview was conducted as a pretest. Minor revisions and alterations in the manner of conducting the interview were made. The pretest indicated that 45 minutes was adequate time to conduct the initial interview.

Preparing the Purchasing Record

The food check list on which recalled food purchases were recorded during the interview was modified so it could be used as a list on which the actual food purchases were recorded. A table of contents of the items listed in the purchasing record was included to aid the homemaker in recording her purchases. Directions for listing purchases, food gifts, home canned foods, and freezer items were provided. Purchases were noted by

marking the quantity obtained. All other foodstuffs were listed by quantity and designated as to source.

The Interview

The first contacts with the mothers were made by telephone. The group undertaking the research was identified and the purpose of the research was explained at this time according to the procedure recommended by Adams (1958, p. 6). The interviewer requested permission to call upon and interview each mother in her home. During the home visit, information was recorded on the interview schedule (Appendix, pp. 70-90).

Each homemaker was asked to recall her purchasing pattern of every food item found in a specially prepared food check list (Appendix, pp. 75-90). The homemaker stated whether the food items were purchased usually, occasionally, very seldom, or never. After finishing a food category, the homemaker was asked to add any items that she purchased that were not found on the list. When needed, comments were noted at the end of the schedule during and immediately following the interview. The interviews were conducted from August 30 to September 15, 1961.

The Purchasing Record

After the interview, the respondent was given a food purchasing record for listing family food purchases. This record was explained and the mother was asked to fill out the

record for a period of one week. At the end of a week, the record was picked up by the interviewer and a second left for the following week. The food purchases of each family was recorded for a period of two weeks sometime during the month of September, 1961.

Tabulation and Evaluation of Data

The data concerning family description collected during the interview were tabulated to categorize families by the occupation of the wage earner, age of family members, and educational level of the parents. Each of these areas was given a numerical value and the social class of each family was determined according to the method of McGuire (1952) for identifying social class.

The replies to questions concerning the marketing practices of each family were tabulated according to the family member who makes the food purchasing decisions, the family member who does the buying, the pattern of shopping of each family, the reasons for shopping in a specific store, and the marketing aids used. These answers were studied in relation to their effect on family food purchases.

The data regarding the nutritional knowledge of the homemakers were tabulated according to the following areas: knowledge of the Basic Seven and the Basic Four food groups, basic foods which should be served daily and the reasons for serving them, substitutes for certain basic foods, special foods served

for children, and the adequacy and source of each homemaker's nutritional knowledge. This information was examined to determine the relationship of each factor to foods purchased by the family. Data concerning the recalled and actual food purchases were classified according to the Basic Seven food groups. These classifications were used to study the factors affecting the food purchasing patterns of the families interviewed.

RESULTS AND DISCUSSION

Classification of Subjects

Twenty-two homemakers with children enrolled in nursery school for the fall semester, 1961, were contacted but only 17 were able to participate in this study. One homemaker was ill, two mothers withdrew their children from the nursery school, and two families moved from the Manhattan area.

Age of Family Members. Table 1 indicates the number of persons in each family and their ages. The fathers ranged from 26 to 45 years of age with a median age of 33 years. The mothers ranged in age from 23 to 45 years with a median age of 30 years. The ages of the children ranged from six months to 13 years. Three years and one half years was the median age of the children.

Educational Level of the Parents. The subjects in this study, in general, had received a rather high formal education (Table 2). In four families both parents had either a M.S. or

Table 1. Family composition and age of family members.

Code Number of Family	: Age of Father (years)	: Age of Mother (years)	: Age of Children (years)
1	30	29	3.5
2	26	27	3.0, 1.3
3	26	26	4.0, 2.0
4	40	37	12.0, 9.0, 5.0, 4.0
5	45	45	7.8, 2.8
6	33	34	3.0, 0.5
7	33	26	4.0, 3.0
8	30	30	3.0
9	38	38	4.0
10	27	23	5.3
11	29	26	2.6
12	35	32	5.0, 3.0
13	40	39	13.0, 11.0, 4.0, 1.0
14	37	33	7.0, 5.0, 3.0
15	29	30	3.5, 0.8
16	41	38	9.0, 6.0, 3.0
17	36	30	5.5, 3.5

a Ph.D. degree. It was noted in three families that the father possessed a graduate degree, whereas the mother had only a high school education.

Each of the mothers was asked to state her college major and occupation before marriage as it was believed that this might affect her marketing practices and nutritional knowledge. Three of the 12 mothers who attended college majored in home economics, two in English, and two in history. Of the remaining five mothers who attended college, one majored in each of the following areas; chemistry, physical therapy, speech therapy, business, and advertising design. Eleven of the 12 mothers worked after college. Six, including the three home economics

majors, taught in high school. There was one mother employed in each of the following occupations; Red Cross recreation program, Civil Service accounting, interior decoration, speech therapy, and physical therapy.

Table 2. Educational level of parents.

		:Graduate:	B.A. or B.S. :	Attended College:	High School
		: Study :	Degree :	Two Years :	Graduate
--		1a*, 1b		--	--
2a		2b		--	--
3a		--		--	3b
4a		--		4b	--
5a, 5b		--		--	--
6a		--		--	6b
7a, 7b		--		--	--
8a		8b		--	--
9a, 9b		--		--	--
--		10a		--	10b
11a		11b		--	--
12a		12b		--	--
13a		--		--	13b
14a		14b		--	--
--		15a, 15b		--	--
16a, 16b		--		--	--
--		--		17a	17b
Total	a	13	3	1	0
Number	b	4	7	1	5

*Family code number; "a" represents the father and "b" the mother.

Occupation of Wage Earners. In general, the fathers in this study were what is termed white collar workers (Table 3). Nine fathers were teachers at Kansas State University. Two fathers were students at the university. The majority of the mothers did not work outside the home. Five mothers were gainfully employed; only two worked full-time.

Table 3. Occupation of parents.

		Student:	Teacher:	Manager:	Minister:	Psychologist:	Architect:	Clerk
1a*	1b	--	--	--	--	--	--	--
2a	--	--	--	--	--	--	--	--
--	3a	--	--	--	--	--	--	--
--	4a	--	--	--	--	--	--	--
--	5a	--	--	--	--	--	--	--
--	6a	--	--	--	--	--	--	--
--	7a	--	--	--	--	--	--	--
--	--	--	--	--	8a	--	--	--
--	9a, 9b	--	--	--	--	--	--	--
--	--	10a	--	--	--	--	--	10b
--	11b	--	11a	--	--	--	--	--
--	12a	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	14a, 14b	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	16a	--	--	--	--	16a	--	--
--	--	17a	--	--	--	--	--	--
Total Number								
a	2	10	2	1	1	1	1	0
b	0	4	0	0	0	0	0	1

*Family code number; "a" represents the father and "b", the mother.

Social Class. All of the 17 families studied were classified as middle class using the McGuire short form for the identification of social class. McGuire (1952) divided the middle class into upper and lower divisions. Sixteen of the families were classified in the upper middle group and one family in the lower middle group. Since there were no families categorized in the upper or lower classes, no comparison on the effect of social classes on family food purchases could be made.

Marketing Practices of Homemakers

Food Purchasing Decisions. In the majority of the households studied, the mother made the food purchasing decisions (Table 4). Sixteen of them used a shopping list at least part of the time.

Family Member Who Does the Buying. In this study, usually the mother was the family member who did the grocery buying (Table 4).

Pattern of Shopping. The majority of the homemakers interviewed did their marketing once a week and preferred to shop on Thursdays or had no special shopping day (Table 4). None of the homemakers interviewed phoned in orders. Most of them shopped in supermarkets which did not have a delivery service. A majority of the homemakers spent from 45 minutes to one hour in the store while shopping.

Reasons for Shopping in a Specific Store. Fourteen of the 17 mothers interviewed shopped in a specific store (Table 5). A majority of the homemakers stated that they learned of prices while shopping more often than they compared prices at the different stores prior to shopping. However, economy was mentioned most often as the influencing factor in the choice of a grocery store. This would indicate that after an initial decision as to the store with the most economical prices, no further price comparison between stores was undertaken.

Table 4. Shopping patterns of families.

Family Code Number	Makes Food Purchasing Decisions*	Uses a: List	Does Shopping*	Frequency	Day	Time Spent	Where Done	Phone in Orders
1	b	No	c	Every Two Weeks	--	2 hours	Supermarket	No
2	b	Yes	b	Weekly	Fri.	1 hour	Supermarket	No
3	b	Yes	b	Weekly	Thurs.	45 min.	Small Market	No
4	b	Yes	b	Weekly	Thurs.	45 min.	Supermarket	No
5	b	Yes	c	Weekly	Sat.	30 min.	Supermarket	No
6	b	Yes	b	Weekly	Thurs.	1 hour	Supermarket	No
7	b	Yes	b	Weekly	Thurs.	1 hour	Supermarket	No
8	b	Yes	b, a	Weekly	--	1 hour	Commissary	No
9	b	Yes	b	Two-Three Days	--	45 min.	Supermarket	No
10	b	Yes	b	Weekly	Thurs.	1 hour	Supermarket	No
11	b	Yes	b, a	Two-Three Days	--	30 min.	Supermarket	No
12	b	Yes	b	Weekly	--	1 hour	Supermarket	No
13	c	Yes	b	Two-Three Days	--	20 min.	Supermarket	No
14	b	Yes	b, a	Two-Three Days	Thurs.	45 min.	Supermarket	No
15	b	Yes	c	Two-Three Days	--	20 min.	Supermarket	No
16	b	Yes	b	Weekly	Wed.	1½ hours	Supermarket	No
17	b	Yes	b	Weekly	Fri.	1 hour	Supermarket	No

* "a" represents the husband; "b", the wife; and "c", both the husband and wife together.

Table 5. Number of homemakers stating reasons for shopping in a specific store.

Reasons	1st	2nd	3rd
Economy	9	2	1
Store Nearby	1	2	2
Quality	1	3	1
Parking Space	1	1	2
Selection Available	0	6	6

Marketing Aids Used. Newspaper advertisements were used by 11 of the 17 homemakers as a marketing aid (Table 6). Since most homemakers did not compare the prices at different stores, the use of newspaper advertisements would indicate that they purchased foods advertised by a specific store as "specials". Newspaper and magazine articles were used as shopping guides by 10 of the 17 homemakers interviewed. Four homemakers used no marketing aids at all.

Table 6. Number of homemakers using marketing aids.

Marketing Aid	Regularly	Infrequently	Not at All
Newspaper Ads	9	2	5
Radio and TV Ads	1	5	10
Agric. Exp. Sta. Bulletins	2	2	12
Newspaper and Magazine Articles	5	5	6

Nutritional Knowledge of the Homemakers

Familiarity With Basic Seven Food Groups. Fifteen of the 17 homemakers interviewed stated that they were familiar with

the Basic Seven food classification (Table 7). The majority of them could name three or more of the seven food groups. Meat, fish, poultry, and eggs was the food group most often mentioned. The food group named the least number of times was butter, margarine, and oils.

Table 7. Number of homemakers familiar with Basic Seven and Basic Four food groups.

Familiar with Food Groups		:	Number of Groups Correctly Named								
Yes	No		:	0	1	2	3	4	5	6	7
			Basic Seven								
15	2		5	-	-	1	4	3	2	2	
			Basic Four								
4	13		14	-	-	2	1				

Familiarity with Basic Four Food Groups. The majority of the mothers interviewed had not heard of the Basic Four food groups (Table 7). This finding was expected as the Basic Four was devised approximately six years ago and most of these homemakers completed their formal education before this time.

Basic Foods and Reasons for Serving Them. During the interview, each homemaker was asked to name food items that she believed should be included in the family's daily meals and tell why these foods should be served. Later the foods named were classified according to the food groups of the Basic Seven (Table 8). The majority of the mothers named foods belonging to three or more of the Basic Seven food groups as those that should be included in the daily meals. The food group mentioned

the most times as a basic food essential to the family's daily meals was meat, fish, poultry, and eggs. Butter, margarine, and oils was the food group mentioned the fewest number of times.

Table 8. Number of homemakers stating essential food groups and reasons for serving them.

Number of Correct Answers							
0	1	2	3	4	5	6	7
Basic Food Groups Named							
-	2	-	5	3	3	4	-
Reasons Given							
8	2	1	4	-	-	2	-

Though the homemakers named some foods that they considered essential for the family's meals, they could not give the correct reasons for serving all the foods they named (Table 8). The knowledge of the presence of the major nutrients in each food were considered the correct reason for serving the food.

Basic Food Substitutions. Every homemaker was given one food item found in each Basic Seven food group and asked to name a substitute of equal nutritive value. The majority of the homemakers demonstrated some knowledge of basic food substitutes (Table 9). This means that they could name at least three of the seven groups. Fifteen of the homemakers named four to six of the seven groups.

Table 9. Number of homemakers naming basic food substitutes.

Number of Correct Substitutions Named						
1	:	2	:	3	:	4
-	:	-	:	2	:	4
	:		:		:	10
	:		:		:	1
	:		:		:	-

Special Foods Served for the Children. Eleven of the 17 homemakers interviewed stated that they served special foods for their preschool children. The special foods were unmixed soft foods, simple desserts, and finger foods which were pointed out by Martin (1954), Mirone et al. (1956), and Ilg (1948) as particular favorites of preschool children. Several mothers named specific foods that were liked especially by their children; such as macaroni and cheese, hot dogs, potatoes and gravy, and peanut butter.

Adequacy and Source of Nutritional Knowledge. Each homemaker was asked to rate herself as to the adequacy of her nutritional knowledge. Nine stated that they believed their knowledge was adequate; five did not believe their knowledge was sufficient and three were undecided. The homemakers received their nutritional knowledge from a variety of sources (Table 10). Three homemakers stated that they gained their nutritional knowledge from reading magazines and newspapers. One homemaker stated that she had received her nutritional knowledge when a secretary for the department of Foods and Nutrition; however, she did not explain how this increased her nutritional knowledge. Fourteen of the homemakers received their nutritional knowledge from classes

Table 10. Number of homemakers stating sources of nutritional knowledge.

School		Reading:	4-H	Worked for F&N Dept.	Don't Know
High School	College				
10	4	3	2	1	4

taken in high school and college.

Nutritional knowledge scores for each homemaker were determined by giving a numerical value for each of the following correct answers: Basic Seven food groups (seven points), Basic Four food groups (seven points), each basic food (seven points), basic food substitutes (seven points), and reason for serving basic foods (seven points). The possible total score was 35. There was a wide range in the nutritional knowledge scores of the homemakers (Table 11). It might be expected that the homemakers who majored in home economics in college would score the highest regarding their nutritional knowledge, but this occurred

Table 11. Comparison of nutritional knowledge and self-rating scores of homemakers.

Factors	Nutritional Knowledge Scores				
	: Poor : 0-9	: Fair : 10-15	: Average : 16-21	: Good : 22-27	: Excellent : 28-35
Believed Knowledge Adequate	2	4	1	1	1
Believed Knowledge Inadequate	1	2	1	1	-
Undecided	1	1	1	-	-
Total	4	7*	3*	2	1*

*One homemaker in each of these groups majored in home economics.

in only one of three instances. No relationship between educational level and nutritional knowledge scores was evident. This is in contrast to the findings of Young et al. (1956a, 1956b, 1956c, 1956d).

The nutritional knowledge scores were compared to the adequacy rating each homemaker gave herself (Table 11). It would appear that most of the homemakers were unable to accurately rate their nutritional knowledge. However, it was observed by the interviewer that many of the homemakers were put on the defensive when asked to rate their nutritional knowledge and were undecided as to how they should respond. It is recommended that the question be reworded or deleted from the interview schedule.

Meat, fish, poultry, and eggs appeared to be the food group with which the homemakers were most familiar as it was most frequently named as an essential food, a Basic Seven food group, and a Basic Four food group. More homemakers named the correct reasons for serving this group than any of the others. The butter, margarine, and oils food group received the least emphasis from the homemakers and appeared to be the least familiar of any food group. Young et al. (1956a, 1956b, 1956c, 1956d) also found that more knowledge was needed in the areas of butter, margarine, and oils. Two other food groups that were given little emphasis by the homemakers were: (1) tomatoes, cabbage, and citrus fruit, and (2) green and yellow vegetables. It appeared that still more educational emphasis needs to be put

on the vitamin-rich fruits and vegetables. This finding is in agreement with the conclusion of Young et al. (1956a, 1956b, 1956c, 1956d) that additional knowledge is needed in the areas of ascorbic acid foods and foods which are good sources of carotene.

Recalled Food Purchases

According to Basic Seven Food Groups. The recalled food purchases as classified according to the Basic Seven food groups may be seen in Table 12.

It is evident from Table 12 that the homemakers recalled a larger proportion of food purchases in the butter, margarine, and oils group than in the other groups, even though they did not stress during the interview that this group was essential to the family's daily meals (p. 45). The Basic Seven food group of bread, cereals, and nuts contained proportionally the smallest number of recalled food purchases of any group.

Food Purchases Most Often Recalled. The food items recalled as "usual" purchases by at least 15 of the 17 homemakers were determined (Table 13).

Table 13 indicates that animal protein foods and vitamin C-rich foods were recalled as "usual" purchases by most of the homemakers. More fruits were recalled as "usual" purchases than vegetables.

An overall picture of the foods commonly served by 15 of the 17 homemakers interviewed is shown in Table 13. All forms

Table 12. Recalled food purchases according to Basic Seven food groups.

Basic Seven Food Group	: Total No. of : Possible Items*	Items Purchased					
		: Usually:		: Occasionally:		: Very Seldom : or Never	
		No.	%	No.	%	No.	%
Butter, Mar- garine & Oils	119	66	50	16	13	37	37
Meat, Fish, Poultry & Eggs	680	172	25	211	31	297	44
Bread, Cereals and Nuts	952	210	22	196	21	546	57
Potatoes, Other Fruits and Vege- tables	1904	461	24	553	29	890	47
Green and Yellow Vegetables	578	206	36	113	20	259	44
Tomatoes, Cabbage, and Citrus Fruits	493	156	32	101	20	236	48
Milk, Cheese, and Ice Cream	340	96	28	80	24	164	48

*Number of homemakers (17) multiplied by the number of items listed.

of tomatoes and tomato products were purchased. Animal protein foods and vitamin C-rich foods again were well represented by the recalled food purchases of the homemakers. Items of the food group composed of green and yellow vegetables were not recalled as major food purchases, with three exceptions (carrots, frozen peas, and green peppers).

Beef was the type of meat most often recalled as a food purchase. Lamb and veal were mentioned the least number of

Table 13. Food items most often recalled as purchases by the homemakers.

Number of Homemakers		
17	:	16
	:	15
Usual Purchases		
Ground Beef	Eggs	Fresh Apples
Chicken	Cantaloupe	Fresh Peaches
Whole Milk	Bananas	Celery
Head Lettuce	Fresh Carrots	Peanut Butter
Fresh Tomatoes	Margarine	Frozen Orange Juice
Occasional Purchases		
White Fresh Potatoes	Roast Beef	Beef Steak
Pickles	Bacon	Applesauce
Canned Tomatoes	Ham	Ice Cream
Tomato Catsup	Frankfurters	Cream Cheese
Flavored Gelatin	White Ocean Fish	Winter Onions
	Tuna	Canned Corn
	Fruit Cocktail	Frozen Corn
	True Cheeses	Fresh Corn
	Watermelon	Fresh Strawberries
	Raisins	Canned Pineapple
	White Bread	Soda Crackers
	Spaghetti	All-Purpose Flour
	Frozen Peas	Oatmeal
	Cooking Oils	White Rice
	Fresh Oranges	Green Peppers
	Canned Grapefruit	Fresh Lemons
	Tomato Paste	Tomato Juice
	Tomato Soup	Canned Vegetable Soup
	Brown Sugar	Canned Mushroom Soup
	Powdered Sugar	Maple Syrup
	Cottage Cheese	Jellies, Jams and Marmalades

times. Fruits were stated slightly more often than vegetables as a recalled food purchase.

Effect of Shopping Habits. The effect on the shopping habits of the family member who made the food purchasing decisions could not be studied as only one family differed from

all others. In one family both the husband and the wife made the food purchasing decisions, whereas the mother made the decisions in all the other families. One mother of the 17 interviewed did not use a shopping list so the effect of this factor was not studied. All but two homemakers shopped in a supermarket so the effect of the store in which the shopping was done was not studied. It was found that the family member who did the shopping had little effect on the recalled food purchases of the homemakers (Table 14). The homemakers who shopped only once a week recalled slightly more food purchases in all basic food groups except the group of tomatoes, cabbage, and citrus fruit than did the homemakers who had no special shopping day. The time spent shopping had no definite effect on the recalled food purchases. There was no apparent pattern of difference in recalled food purchases between homemakers who regularly used marketing aids and those who did not.

Effect of Age, Employment, Education, and Nutritional Knowledge. The homemakers were divided into two groups according to age. The median age of 30 years was the age at which the division was made. There was no evidence that age had an effect on the overall recalled food purchases (Table 15). The recalled food purchases of homemakers who were employed gainfully were compared to those of the homemakers who did not work outside the home. The recalled food purchases of the employed mothers did not differ, generally, from those of the unemployed mothers. When the recalled food purchases of homemakers with a

Table 14. Effect of shopping habits on the recalled food purchases of homemakers.

Frequency of Purchase	Person Shopping			Frequency of Shopping		Day for Shopping		Time Spent Shopping			Marketing Aids Used		
	Only Mother	Mother or Father	Both Together	2-3 Weekly	No special Days	Week Ends	20-30 min.	3/4 hr. - 1 hr.	1 1/2 hr. - 2 hr.	Regular	Occasional	Not at All	
Meat, Fish, Poultry, and Eggs													
Usual	9.8	12.5	9.0	10.5	9.4	10.5	9.5	10.2	10.2	9.6	10.0	10.2	10.5
Occasional	15.0	6.3	12.0	13.8	11.6	11.7	13.5	11.7	13.0	14.0	13.2	14.0	12.5
Seldom	8.5	6.3	4.0	7.4	5.4	4.7	8.0	4.5	7.7	6.6	6.5	6.7	6.1
Potatoes, Other Fruits and Vegetables													
Usual	11.0	19.7	31.0	28.0	22.6	28.2	23.4	27.0	26.6	25.0	21.5	27.7	29.0
Occasional	29.0	26.7	21.0	28.4	26.6	28.7	25.5	22.0	28.8	22.3	26.2	31.6	24.5
Seldom	18.0	29.7	11.0	18.3	16.8	10.7	22.6	14.0	19.4	15.0	23.5	16.3	14.3
Green and Yellow Vegetables													
Usual	8.3	5.3	11.0	10.0	6.4	8.2	8.0	8.5	7.5	10.6	9.5	6.8	9.5
Occasional	7.8	3.7	5.0	7.9	5.8	5.5	6.6	5.0	6.1	5.3	4.5	8.3	6.3
Seldom	3.0	5.0	2.5	3.0	5.8	3.0	3.5	4.0	3.5	2.3	3.5	3.5	3.1
Milk, Cheese, and Ice Cream													
Usual	5.7	7.0	6.0	5.4	6.8	6.1	5.4	7.0	5.4	5.3	5.5	5.3	6.3
Occasional	4.4	6.3	3.0	5.4	3.6	4.1	4.7	4.0	4.8	5.3	5.2	4.3	5.1
Seldom	4.7	2.0	2.5	10.6	3.4	2.7	5.0	3.2	4.7	3.0	6.0	5.1	2.3
Butter, Margarine, and Oils													
Usual	3.5	4.0	4.0	4.0	3.3	3.5	4.0	4.0	3.6	4.0	4.0	3.2	4.5
Occasional	1.0	0.7	1.0	0.9	1.0	1.1	0.8	1.0	1.0	0.6	0.7	1.0	1.1
Seldom	0.9	0.3	1.5	0.7	1.0	0.5	0.9	0.8	0.9	0.3	0.7	0.1	0.5
Breads, Cereals, and Nuts													
Usual	13.4	9.0	14.5	14.9	11.6	13.2	12.6	10.5	13.2	15.3	15.7	11.2	14.1
Occasional	15.0	13.0	6.8	13.0	14.8	12.5	15.0	11.2	14.2	10.3	13.7	14.7	11.3
Seldom	8.0	12.5	7.2	8.6	9.6	8.2	13.2	7.5	9.9	7.0	6.7	10.1	7.6
Tomatoes, Cabbage, and Citrus Fruit													
Usual	8.8	7.3	11.0	9.0	8.6	9.5	8.3	10.2	8.5	9.3	7.5	9.1	10.1
Occasional	6.3	6.0	4.0	5.4	6.8	7.1	5.0	4.5	6.5	4.6	5.7	7.1	5.0
Seldom	3.2	2.0	2.3	3.2	2.0	1.1	3.9	1.5	3.4	3.0	4.0	2.6	2.8

Figures in this table represent an average number of recalled purchases per family.

Table 15. Effect of age, employment, education, and nutritional knowledge on recalled food purchases of homemakers.

Frequency of Purchase	Age		Education		Employed		Nutritional Knowledge Scores	
	Under 30	Over 30	College Graduate	High School Graduate	Yes	No	High	Low
Meat, Fish, Poultry, and Eggs								
Usual	9.1	10.4	10.4	9.5	12.2	10.0	9.2	9.9
Occasional	12.8	1.7	11.9	15.0	10.2	14.1	9.6	14.4
Seldom	6.1	7.4	5.8	8.5	8.6	7.1	7.6	6.4
Potatoes, Other Fruits and Vegetables								
Usual	24.8	28.1	25.8	22.5	24.4	26.4	22.4	28.0
Occasional	28.7	25.2	27.8	26.3	23.0	29.0	28.0	27.0
Seldom	15.7	19.7	15.4	20.8	13.4	17.0	21.2	15.7
Green and Yellow Vegetables								
Usual	8.7	8.2	9.0	7.0	8.0	8.5	7.4	8.6
Occasional	6.3	7.1	6.1	6.5	4.6	7.5	4.6	6.5
Seldom	3.3	3.5	3.9	2.5	4.0	3.1	3.6	3.3
Milk, Cheese, and Ice Cream								
Usual	5.8	5.7	5.4	6.1	6.0	5.6	6.0	5.6
Occasional	5.4	3.7	5.0	4.0	4.4	4.8	4.8	4.6
Seldom	3.1	5.0	3.2	5.0	2.4	4.5	4.4	3.6
Butter, Margarine, and Oils								
Usual	6.0	3.4	4.0	3.5	4.2	3.6	3.4	4.0
Occasional	1.0	0.9	0.7	1.3	0.8	1.0	1.2	0.8
Seldom	0.3	1.2	0.7	0.8	0.6	0.8	0.6	0.8
Breads, Cereals, and Nuts								
Usual	14.8	11.7	14.1	12.3	10.8	13.8	13.6	13.4
Occasional	12.8	13.7	11.8	15.6	10.8	13.7	14.2	13.1
Seldom	8.6	8.8	8.7	9.0	8.8	8.4	9.4	7.2
Tomatoes, Cabbage, and Citrus Fruit								
Usual	9.9	4.7	9.5	8.1	8.2	9.9	8.6	9.2
Occasional	6.3	6.1	6.0	5.6	5.8	6.0	6.8	5.5
Seldom	2.7	3.0	2.3	3.8	2.8	2.9	2.8	2.9

Figures in this table represent an average number of purchases per family found in each category listed at the left.

high level of formal education were compared to the recalled purchases of homemakers with a lower level of education, no consistent effect on the recalled purchases was evident. There was no indication that the level of nutritional knowledge of the homemakers had any consistent effect on their recalled food purchases.

Effect of Processing. In general, there was no consistent preference for a certain processing form for vegetables. Dried navy beans were recalled as a food purchase slightly more often than canned navy beans. Canned kidney beans were mentioned as a recalled food purchase more than dried kidney beans. Frozen fruit juices were stated as recalled food purchases more than canned fruit juices. Fresh fruits were named more often as a recalled food purchase than canned fruits.

Margarine was recalled as a food purchase far more often than butter, whereas cooking oils were mentioned only a few more times than hydrogenated shortening as recalled food purchases.

Coffee was a recalled food purchase of more homemakers than instant coffee. Tea bags were recalled more often as a food purchase than instant tea.

The effect of age, employment, and level of nutritional knowledge on the purchasing patterns of the homemakers regarding certain specific processed food items was studied. Only the factors demonstrating an effect on the recalled foods purchased will be cited. The older homemakers recalled food

purchases of dehydrated potatoes, all forms of prepared bakery products, and cake and quick bread mixes slightly more often than the younger homemakers. Homemakers with low nutritional knowledge scores used more prepared forms of bakery products, cake and quick bread mixes, and soups than the homemakers with high nutritional knowledge scores. The unemployed mothers recalled purchasing slightly more prepared bakery products and cake and quick bread mixes than employed mothers.

Actual Food Purchases

For a two week period during the month of September, 1961, 12 homemakers recorded all food purchases on a specially prepared purchasing record. Five homemakers refused to keep food purchasing records because they did not have the time.

According to Basic Seven Food Groups. The recorded food purchases were classified according to the food groups of the Basic Seven (Table 16).

The food group composed of butter, margarine, and oils was the group in which the greatest percentage of the listed items actually were purchased. During the interview the homemakers had recalled the fewest purchases in the food group bread, cereals, and nuts, but this group was second in percentage of the listed items that actually were purchased. The food group containing potatoes, and other fruits and vegetables was the food group in which the smallest percent of the listed items actually were purchased; however, it was an intermediate group

Table 16. Actual food purchases classified according to Basic Seven food groups.

Basic Seven Food Group	: Number of : Listed Items	: Number of Listed Items Purchased			
		: By All Homemakers	: %	: By at Least 7 Homemakers	: %
Butter, Margarine, and Oils	7	6	86	1	14
Breads, Cereals, and Nuts	64	51	83	2	3
Meat, Fish, Poultry, and Eggs	43	32	74	6	14
Tomatoes, Cabbage, and Citrus Fruit	29	21	72	1	3
Milk, Cheese, and Ice Cream	20	14	70	4	20
Green and Yellow Vegetables	32	21	66	2	6
Potatoes, and Other Fruits and Vegetables	114	63	55	6	5

according to the recalled food purchases of the homemakers. The food groups containing the greatest percentage of items purchased by a majority of the homemakers were: (1) tomatoes, cabbage, and citrus fruit and (2) breads, cereals, and nuts.

Food Items Most Often Purchased. The food items actually purchased by at least 10 of the 12 homemakers were determined (Table 17). Seven of the 12 food items actually purchased the most times by the homemakers studied, also were recalled by the homemakers as usual purchases. The remaining five items

actually purchased by most homemakers were recalled as at least occasional purchases. Beef was the type of meat most purchased by the homemakers. Lamb and veal were purchased the least times of any type of meat. Items that were purchased by all 12 homemakers in some form were apples, tomatoes, oranges, milk, cheese, bread, and pork.

Table 17. Food items most often purchased by the homemakers.

Number of Homemakers		
11	:	10
Ground Beef		Roast Beef
Eggs		Frankfurters
Fresh Apples		Chicken
Head Lettuce		Fresh Carrots
Whole Milk		True Cheeses
Ice Cream		
White Bread		

Effect of Shopping Habits. The effect of the family member making the food purchasing decisions and the use of a shopping list could not be studied as in all 12 cases the mother made the decisions and used a shopping list. There was no evidence to indicate that the various shopping habits had any effect on the actual food purchases (Table 18).

Effect of Age, Employment, Education, and Nutritional Knowledge. Evidence indicated that older homemakers purchased more food items in all but two of the Basic Seven food groups. These two groups were; (1) meat, fish, poultry, and eggs and (2) butter, margarine, and oils (Table 19).

Table 18. Effect of shopping habits on actual food purchases.

Foods	:Person Shopping				:Frequency of Shopping:		:Day for Shopping		:Time Spent Shopping		:Marketing Aids Used		
	:Only	:Mother and	:	:	:No Special	:Week	:20-30	:45 Min.	:	:	:	:	
	:Mother:	Father	: Weekly	: 2-3 Days	Day	: Ends	Min.	: 1 Hr.	:Regular	: Occasional	: Not at All	:	
Meat, Fish, Poultry, and Eggs													
Meats (Lbs.)	20.8	14.7	15.0	10.0	18.6	9.6	15.0	21.0	7.0	22.2	1.9		
Eggs (Dz.)	4.6	1.8	5.2	0.9	2.6	4.0	2.0	4.4	3.2	4.2	3.0		
Potatoes, Other Fruits and Vegetables													
Processed (Lbs.)	27.2	27.0	38.2	25.0	4.6	10.7	30.0	28.0	2.8	2.5	45.6		
Fresh (Units)	15.7	11.0	17.0	9.4	5.6	5.0	16.0	15.0	10.5	19.0	15.4		
Juice (Qts.)	1.2	1.5	1.1	1.9	--	2.7	1.0	0.8	1.8	0.6	0.9		
Green and Yellow Vegetables													
Processed (Lbs.)	6.3	2.7	5.7	3.8	2.3	4.7	4.0	5.8	4.7	4.0	6.0		
Fresh (Units)	4.7	5.4	4.7	3.0	4.6	6.3	3.5	5.3	5.5	3.8	7.6		
Milk, Cheese, and Ice Cream													
Milk (Qts.)	22.4	35.0	15.4	37.7	28.7	24.7	47.0	25.8	15.7	13.6	35.0		
Cheese (Lbs.)	2.5	4.0	3.3	3.0	3.3	2.6	7.0	2.1	2.2	2.2	2.2		
Ice Cream (Qts.)	5.4	4.5	4.0	13.0	2.6	6.6	4.0	7.3	9.5	1.8	3.6		
Butter, Margarine, and Oils													
Fats (Lbs.)	4.5	1.0	4.3	--	0.8	4.0	1.0	4.0	4.2	2.0	3.6		
Oils (Qts.)	0.5	0.6	0.4	0.2	0.1	0.4	--	0.3	0.5	--	0.3		
Breads, Cereals, and Nuts													
Breads and Cereals (Units)	14.0	21.5	11.6	13.9	9.6	13.3	11.0	14.4	12.2	13.2	12.0		
Nuts (Lbs.)	1.0	0.5	5.4	--	5.3	3.7	1.5	4.8	3.5	4.0	4.3		
Tomatoes, Cabbage, and Citrus Fruit													
Fresh (Units)	5.2	4.0	5.5	0.9	2.3	0.7	6.0	4.5	4.7	4.2	4.0		
Processed (Lbs.)	3.8	3.8	4.0	3.1	4.0	4.0	3.0	4.4	4.0	1.8	0.7		
Juice (Qts.)	2.9	5.1	2.7	2.4	1.6	2.7	2.2	2.6	2.4	2.4	1.0		

Figures in this table represent an average number of actual purchases per family.

Table 19. Effect of age, education, and nutritional knowledge scores on actual food purchases.

Foods	Age		Education		Nutritional Knowledge Scores	
	Under 30	Over 30	College Graduate	High School Graduate	High	Low
	: 30	: 30	: Graduate	: Graduate	: High	: Low
Meat, Fish, Poultry, and Eggs						
Meats (Lbs.)	18.1	18.0	14.5	24.2	18.0	19.7
Eggs (Dz.)	3.7	3.4	2.8	4.8	4.0	3.4
Potatoes, Other Fruits and Vegetables						
Processed (Lbs.)	15.4	38.2	25.6	29.2	31.6	30.0
Fresh (Units)	9.0	8.0	9.5	0.7	16.4	12.5
Juice (Qts.)	1.0	0.7	1.2	11.5	0.8	1.1
Green and Yellow Vegetables						
Processed (Lbs.)	5.8	6.5	4.2	4.7	3.0	5.5
Fresh (Units)	5.1	5.0	3.7	4.8	5.0	4.1
Milk, Cheese, and Ice Cream						
Milk (Qts.)	21.1	31.7	28.3	15.5	26.4	19.7
Cheese (Lbs.)	3.1	3.2	4.1	1.0	3.6	1.6
Ice Cream (Qts.)	5.4	9.0	4.2	2.1	8.6	5.1
Butter, Margarine, and Oils						
Fats (Lbs.)	3.5	2.5	6.0	1.2	2.0	4.1
Oil (Qts.)	0.3	0.3	0.6	0.3	0.5	0.4
Breads, Cereals, and Nuts						
Breads and Cereals (Units)	10.2	15.0	15.2	10.4	13.6	10.5
Flour and Nuts (Lbs.)	3.1	0.5	5.6	3.0	0.6	3.2
Tomatoes, Cabbage, and Citrus Fruit						
Processed (Lbs.)	3.8	2.2	--	1.0	3.5	3.2
Fresh (Units)	3.0	7.0	4.8	3.1	3.0	5.1
Juice (Qts.)	1.8	4.8	0.6	1.4	3.9	3.2

Figures in this table represent an average number of purchases per family.

The effect of employment on the actual food purchases of the homemakers interviewed could not be studied as only five of the mothers were employed outside the home and three of these five did not keep food purchasing records. The two employed mothers who kept food purchasing records only worked half-time.

The homemakers with the highest level of education did not differ, generally, in their actual food purchases from the homemakers with the lowest level of education. More items in the food group containing milk, cheese, and ice cream and the food group of potatoes, other fruits and vegetables were purchased by homemakers with high nutritional knowledge scores than by homemakers with low nutritional knowledge scores. No relationship between educational level and nutritional knowledge scores was evident. This is in contrast to the findings of Young et al. (1956a, 1956b, 1956c, 1956d).

Effect of Processing. As with the recalled food purchases, the actual food purchases disclosed no consistent preference for a certain processing form of vegetables. Fresh potatoes were purchased far more often than the processed forms. All forms of tomatoes and tomato products were purchased. Both fresh and canned forms of fruits were purchased by the homemakers. All citrus fruit juices were purchased most often in the frozen form. The canned form of citrus fruits and juices was purchased the least. Whole milk was purchased by most homemakers more than the other forms of milk. Margarine was purchased by far more homemakers than butter. Canned soups were purchased far more

than the dried or frozen soups. Honey was purchased more than syrups. Granulated sugar was the type of sugar most frequently purchased. Ground coffee was purchased by more homemakers than instant coffee.

No homemaker purchased baby or junior foods for her pre-school child or children. Three homemakers had infants for whom they purchased baby or junior foods. Two mothers purchased a wide variety of these foods, whereas one purchased only the meat items.

Evaluation of the Study

The small number of homemakers participating in the study and the short period for which the food purchases were recorded were limitations to the study. For a more representative picture, the food purchases should have been recorded for a month. The limited social class prevented certain comparisons. The actual food purchases of the homemakers were balanced fairly well as a number of items were purchased from each Basic Seven food group. The evidence seemed to indicate that the homemakers total food purchases were of higher nutritive value and more balanced than their nutritional knowledge scores might predict that they would be.

SUMMARY

Seventeen homemakers with children attending the Kansas State University Nursery School during the fall semester, 1961,

were interviewed concerning their marketing practices, nutritional knowledge, and recalled food purchases. Twelve homemakers kept records of actual food purchases for a period of two weeks.

The effect on recalled family food purchases of family marketing practices, nutritional knowledge of the mother, age and education of the mother, and employment of the mother outside the home were studied.

The family member who makes the food purchasing decisions, use of a shopping list, the family member doing the shopping, time spent in shopping, and marketing aids used had no apparent effect on the overall recalled food purchases. The homemakers who shopped only once a week recalled slightly more food purchases in all the Basic Seven food groups than those who shopped every two to three days. The homemakers who shopped on week ends recalled more purchases in all Basic Seven food groups except tomatoes, cabbage, and citrus fruit, than did the homemakers who had no special shopping day. The age, employment, education, and nutritional knowledge scores of the homemakers had no apparent effect on their recalled food purchases.

There was no evidence to indicate that the various shopping habits had any effect on the actual food purchases of the homemakers. The older homemakers purchased more food items in all but two of the Basic Seven food groups than did the younger homemakers. These two food groups were; (1) meat, fish, poultry, and eggs and (2) butter, margarine, and oils. The effect of

employment could not be studied as three of the five mothers employed outside the home did not keep food purchasing records. The food purchases of the mothers with a higher level of formal education did not differ, noticeably, from those of the homemakers with a lower level of formal education. Homemakers with high nutritional knowledge scores purchased slightly more food items in only three of the Basic Seven food groups than those with low nutritional knowledge scores. The three food groups were (1) milk, cheese, and ice cream; (2) breads, cereals, and nuts; and (3) potatoes, other fruits and vegetables. There was no apparent relationship between education and nutritional knowledge scores.

The small number of homemakers participating in the study and the short period for which the food purchases were recorded were limitations to the study. However, the evidence indicated that the total actual food purchases of the homemakers were of higher nutritive value and more balanced than their nutritional knowledge scores might predict that they would be.

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APPENDIX

Form I

INTERVIEW SCHEDULE

Interviewer _____ Interviewee _____ Date of Interview _____

Head of Household _____ Address _____

Husband's Occupation _____

Full Time _____ Wife Employed _____
 Half Time _____ What _____
 No _____

Religious Preference _____

Family Age and Composition

Member	Age
Husband	_____
Wife	_____
Sons	_____
Daughters	_____
Grandparents	_____
Others	_____

(H or W) Source of Income

- Inherited Savings and Investments _____
- New Earned Money Invested _____
- Profits, Fees, Royalties _____
- Salary, Commissions, Yearly or Monthly _____
- Hourly Wages _____
- Income from Odd Jobs or Seasonal Work _____
- Public Relief or Charity _____

Family Educational Level

Member of Household	Last Year of School Completed (degrees completed)
Husband	_____
Wife	_____
Sons	_____
Daughters	_____
Grandparents	_____
Others	_____

Wife's College Major _____ Worked After College _____

Yes _____ What _____
 No _____

Marketing

1. Who makes most of the food purchasing decisions?
 Husband _____
 Wife _____
 Both _____
 Others _____

2. Is a shopping list used?
 Regularly _____
 Sometimes _____
 Never _____

3. Who does the marketing?

Husband	Always _____	Occasionally _____	Never _____	
Wife	Always _____	Occasionally _____	Never _____	
Both	Always _____	Occasionally _____	Never _____	
Others	Always _____	Occasionally _____	Never _____	Who _____

4. How often is the marketing usually done?
 Everyday _____
 Two-Three days _____
 Once a Week _____
 Once Every Two Weeks _____

5. What day of the week is the marketing usually done?

6. How much time is spent in the store during shopping?

7. Where is the marketing usually done?
 Supermarket _____
 Small Independent Grocery _____
 Other (specify) _____

8. Do you phone in orders?
 Regularly _____
 Sometimes _____
 Never _____

9. Do you shop in a specific store (or stores)?
 Yes _____
 No _____

8. What factors cause you to shop in a store? (Rank 1-2-3)

Economy _____
 Prefer Self Service _____
 Services Available (delivery) _____
 Proprietor a Friend or Relative _____
 Store is Nearby _____
 Store Offers a Premium Plan _____
 Selection Available _____
 Charge Accounts _____
 Quality _____
 Cleanliness _____
 Availability of Parking _____
 No Answer _____

Influence of Advertising on and Nutritional
 Literacy of the Mother

1. What sources of information do you use to get information about prices and how to buy?

	Reg	Infreq	Not at All
Radio and TV Advertisements			
Newspaper Advertisements			
Compare Prices at Different Stores			
Learn of Prices at the Store While Shopping			
Bulletins and Information Offered by the Agricultural Extension Service			
Newspaper Articles and Magazines Related to Food Purchasing			
Others (specify)			

Do not Use Any Information _____

2. What should be included in meals for the family each day, how many times a day? Foods to be served several times a week? Why?

Item	Times Served per Day	Times Served per Week	Why

3. Do you serve any special foods for the children? What?
4. Are you familiar with basic 7? What are some of the groups you consider essential to the basic 7?
- | | |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | |
5. Are you familiar with the basic 4? What do you consider some of its essential groups?
- | | |
|----|----|
| 1. | 3. |
| 2. | 4. |
6. What foods of similar food values could be used in place of these certain basic foods?
- | | | |
|----|------------------------|-------|
| 1. | Meat | _____ |
| 2. | Potatoes | _____ |
| 3. | Milk | _____ |
| 4. | Bread | _____ |
| 5. | Leafy Green Vegetables | _____ |
| 6. | Butter | _____ |
| 7. | Citrus Fruits | _____ |
7. Do you feel your knowledge of nutrition is adequate?
8. Where did you receive your knowledge of nutrition?
9. Have you had any nutrition courses?
- | | |
|-------------|-------|
| High School | _____ |
| College | _____ |
| Other | _____ |
| None | _____ |
10. Do you have a food freezer or locker?
- | | |
|-----|-------|
| Yes | _____ |
| No | _____ |
11. Do you have a vegetable garden?
- | | |
|-----|-------|
| Yes | _____ |
| No | _____ |

FOOD CHECK LIST

	Usual or freq.*	Occasion- ally	Very seldom	Never
I. Meat, Fish, Poultry and Eggs				
A. Beef				
Roast				
Steak				
Short Ribs				
Ground Beef				
Dried Beef				
B. Pork				
Roast				
Steak				
Chops				
Ham				
Sausage				
Bacon				
Canadian Bacon				
C. Lamb				
Roast				
Chops				
D. Veal				
Roasts				
Chops				

*freq. used as abbreviation for frequently.

	Usual or freq.	Occasion- ally	Very Seldom	Never
E. Variety				
Kidney				
Heart				
Liver				
Tongue				
F. Cold Cuts and Sausages				
Macaroni and Cheese loaf				
Treet				
Spam				
Bologna				
Spiced Ham				
Boiled Ham				
Corned Beef				
Deviled Ham				
Liverwurst				
Salami				
Summer Sausage				
Frankfurters				
G. Seafoods				
1. Shellfish				
2. Fish				
White				
Fresh				
Ocean				
Pink				
Salmon				
Tuna				
H. Poultry				
1. Chicken				
2. Turkey				
I. Eggs				

II. Vegetables

Usual or freq.	Occasion- ally	Very seldom	Never
-------------------	-------------------	----------------	-------

A. Potatoes

1. White

Fresh
Canned
Frozen
Dehydrated

2. Sweet

Fresh
Canned

B. Artichokes

Canned
Fresh

C. Beets

Canned
Fresh

D. Black-eyed Peas

Canned
Fresh

E. Lima Beans

Canned
Fresh
Frozen
Dried

F. Cauliflower

Fresh
Frozen

G. Celery

H. Chard

I. Corn

Fresh
Frozen
Canned

J. Cucumbers

Fresh
Pickles

	Usual or freq.	Occasion- ally	Very seldom	Never
K. Egg Plant				
L. Mushrooms				
M. Onions				
Green				
Dry				
Flakes				
N. Parsnips				
O. Radishes				
P. Olives				
Green, plain				
Ripe				
Stuffed				
Q. Rutabagas				
R. Squash				
Summer				
Yellow				
White				
Scallop				
Zuchinni				
Winter				
Acorn				
S. Turnips				
T. Pimentos				
U. Navy Beans				
Canned				
Dried				
V. Kidney Beans				
Canned				
Dried				
W. Asparagus				
Fresh				
Frozen				
Canned				

	Usual or freq.	Occasion- ally	Very seldom	Never
X. Green Beans				
Fresh				
Frozen				
Canned				
Y. Broccoli				
Frozen				
Z. Brussel Sprouts				
Frozen				
Fresh				
AA. Lettuce				
Leaf				
Head				
BB. Peas				
Fresh				
Frozen				
Canned				
CC. Green Peppers				
DD. Spinach				
Fresh				
Frozen				
Canned				
EE. Okra				
Fresh				
Frozen				
Canned				
FF. Carrots				
Fresh				
Canned				
Juice				
GG. Wax Beans				
Fresh				
Frozen				
Canned				
III. Fruits				

	Usual or freq.	Occasion- ally	Very seldom	Never
A. Apples				
Fresh (in season)				
Dried				
Sauce and/or slices				
Juice				
B. Apricots				
Fresh (in season)				
Canned				
Dried				
Nectar				
C. Avocado				
D. Banana				
E. Blueberries				
Canned				
Fresh (in season)				
F. Blackberries				
Fresh (in season)				
Frozen				
Canned				
G. Boysenberries				
Fresh (in season)				
Frozen				
Canned				
H. Cantaloupe (in season)				
I. Coconut				
Fresh (in season)				
Dried				
J. Cherries				
Fresh (in season)				
Bing				
Canned				
Bing				
Red Sour				
White				
Maraschino				
K. Cranberries				
Fresh (in season)				
Sauce				

	Usual or freq.	Occasion- ally	Very seldom	Never
L. Dates				
M. Figs				
Dried				
Canned				
N. Fruit Cocktail				
O. Grapes				
Fresh (in season)				
Concord				
Tokay				
Thompson				
Juice				
Canned				
Frozen				
P. Nectarines				
Q. Peaches				
Fresh (in season)				
Canned				
Frozen				
R. Pineapple				
Fresh (in season)				
Canned				
Juice				
S. Plums				
Canned				
Fresh (in season)				
T. Prunes				
Dried				
Juice				
U. Pumpkin				
Fresh (in season)				
Canned				
V. Pears				
Fresh (in season)				
Canned				
W. Raisins				

	Usual or freq.	Occasion- ally	Very seldom	Never
X. Raspberries				
Fresh (in season)				
Frozen				
Canned				
Y. Rhubarb				
Fresh (in season)				
Frozen				
Canned				
Z. Strawberries				
Fresh (in season)				
Frozen				
Canned				
AA. Watermelon (in season)				
BB. Oranges				
Fresh				
Juice				
Fresh				
Frozen				
Canned				
Mandarin				
CC. Grapefruit				
Fresh				
Juice				
Fresh				
Frozen				
Canned				
DD. Lemons				
Fresh				
Juice				
Fresh				
Frozen				
Canned conc.				

	Usual or freq.	Occasion- ally	Very seldom	Never
EE. Limes				
Fresh				
Juice				
Fresh				
Frozen				
Canned conc.				
FF. Tangerines				
GG. Tomatoes				
Fresh				
Canned				
Juice				
Paste				
Catsup				
HH. Cabbage				
Fresh				
Sauerkraut				
Canned				
Juice				
II. Mixed Vegetable Juice				
IV. Milk, Cheese, Ice Cream				
A. Milk Products				
1. Whole				
2. Skim				
3. Evaporated				
4. Condensed				
5. Dried, non-fat				
6. Chocolate				
Fresh				
Dried				
Drink				
7. Buttermilk				
8. Whipping Cream				
9. Half and Half				
10. Formula Diets				
B. Cheese				
1. Cottage Cheese				
2. Cream Cheese				

	Usual or freq.	Occasion- ally	Very seldom	Never
3. True Cheese (Cheddar)				
(Swiss)				
4. Processed Cheese				
C. Ice Cream				
D. Sherbet				
E. Ice Milk				
F. Dairy Queen				
V. Bread, Flour, Cereals, and Nuts				
A. Bread, Crackers and Rolls				
1. White				
2. Whole Wheat				
3. Rye				
4. Soda Crackers				
5. Novelty Crackers				
6. Graham Crackers				
7. Rolls, white pan				
8. Brown and Serve Rolls				
9. Biscuits, canned				
10. Rolls, canned				
B. Flour and Cereal Products				
1. Corn Meal				
2. Cornstarch				
3. Cake Flour				
4. All Purpose				
5. Buckwheat				
6. Graham				
7. Tapioca				
C. Alimentary Pastes				
1. Macaroni				
2. Noodles				
3. Spaghetti				

	Usual or freq.	Occasion- ally	Very Seldom	Never
D. Cereals				
1. All Bran				
2. Bran Flakes				
3. Corn Flakes				
4. Cream of Wheat				
5. Grape Nuts				
6. Special K				
7. Oatmeal				
8. Mush				
9. Puffed Rice				
10. Puffed Wheat				
11. Rice				
White				
Brown				
12. Rice Krispies				
13. Shredded Wheat				
14. Wheat Krumbles				
15. Wheat Chex				
16. Wheaties				
17. Cherrios				
18. Malt O Meal				
19. Sugar Corn Pops				
20. Sugar Frosted Flakes				
E. Nuts				
1. Peanuts				
2. Peanut Butter				
3. Walnuts				
4. Pecans				
5. Almonds				
6. Mixed Nuts				
F. Bakery Products and Mixes				
1. Cakes				
Bakery				
Layer				
Sponge				
Frozen				
Mixes				
Layer				
Sponge				

Usual or freq.	Occasion- ally	Very Seldom	Never
-------------------	-------------------	----------------	-------

2. Doughnuts
Canned
Bakery

3. Pies
Bakery
Frozen
Mixes

4. Muffin Mixes
Blueberry
Bran
Plain

5. Biscuit Mixes
Buttermilk
Plain

6. Pancake Mixes
Buttermilk
Blueberry
Buckwheat
Plain

7. Cookies
Mixes
Refrigerated
Packaged

8. Coffee Cake
Mixes
Bakery
Frozen

VI. Butter, Margarine, Oils

A. Butter

--	--	--	--

B. Margarine

--	--	--	--

C. Salad Dressing

--	--	--	--

D. Mayonnaise

--	--	--	--

E. Cooking Oil

--	--	--	--

F. Hydrogenated
Shortening

--	--	--	--

G. Lard

--	--	--	--

Usual or freq.	Occasion- ally	Very seldom	Never
-------------------	-------------------	----------------	-------

VII. Miscellaneous

A. Soups

1. Vegetable
Packaged
Canned

2. Noodle
Packaged
Canned

3. Mushroom
Packaged
Canned

4. Chili
Canned
Frozen

5. Bouillon
Tablets
Packaged
Canned

6. Onion
Canned
Packaged

7. Tomato
Canned
Packaged

8. Bean

9. Oyster Stew
Canned
Frozen

10. Clam Chowder
Frozen
Canned

11. Split Pea
Canned
Packaged
Frozen

B. Syrups

1. Dark Cane
2. White Corn

	Usual or freq.	Occasion- ally	Very seldom	Never
3. Maple				
4. Molasses				
5. Sorghum				
C. Honey				
D. Sugars				
1. Brown				
2. Granulated				
3. Powdered				
4. Cubed				
E. Jellies, Jams and Marmalades				
F. Puddings				
Instant				
Regular				
G. Gelatins				
Plain				
Flavored				
H. Snacks				
1. Candy				
Hard				
Chocolate				
Gum Drops				
2. Potato Chips				
3. Corn Chips				
4. Pop Corn				
5. Pretzels				
6. Animal Crackers				
I. Beverages				
1. Carbonated Beverages				
2. Coffee				
Regular				
Instant				
3. Tea				
Bulk				
Bags				
Instant				
4. Sanka				

	Usual or freq.	Occasion- ally	Very seldom	Never
5. Postum				
6. Tang				
7. Kool-Aid				
J. Baby Foods				
1. Juice				
2. Meat				
Ham				
Veal				
Beef				
Chicken				
Turkey				
3. Vegetables				
Carrots				
Peas				
Beans				
4. Fruits				
Pears				
Peaches				
Bananas				
Apricots				
5. Cereals				
6. Puddings				
7. Swiebach				
K. Junior Foods				
1. Juice				
2. Meat				
Ham				
Veal				
Beef				
Chicken				
Turkey				
3. Vegetables				
Carrots				
Peas				
Beans				

	Usual or freq.	Occasion- ally	Very seldom	Never
4. Fruits				
Pears				
Peaches				
Bananas				
Apricots				
5. Cereals				
6. Puddings				
7. Swiebach				

COMMENTS:

SOME FACTORS AFFECTING THE FOOD PURCHASES
OF FAMILIES WITH PRESCHOOL CHILDREN

by

JUDY JOAN JORDAN

B. A., Ottawa University, 1960

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Foods and Nutrition

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1962

The factors affecting the food purchases of 17 homemakers with children attending the Kansas State University Nursery School during the fall semester, 1961, were studied. An interview was conducted in which data were collected concerning general family description, marketing practices, nutritional knowledge of the mother, and recalled food purchases. In addition, records of actual food purchases were kept by 12 homemakers for a period of two weeks.

The effects on family food purchases of family social class, family marketing practices, nutritional knowledge of the mother, age and educational level of the mother, and employment of the mother outside the home were studied.

All of the 17 families were classified in the middle class social group. There was no evidence to indicate that the marketing practices or educational level of the mother had any effect on her actual food purchases. Economy appeared to be the most influencing factor in the choice of a grocery store.

The nutritional knowledge scores indicated that the nutritional knowledge of the majority of the homemakers was inadequate according to the standards devised by the interviewer. Homemakers with high nutritional knowledge scores purchased slightly more food items in three of the Basic Seven food groups than did the homemakers with low nutritional knowledge scores. The three food groups were: (1) milk, cheese, and ice cream; (2) breads, cereals, and nuts; and (3) potatoes, other fruits and vegetables. There was no apparent relationship between education and

nutritional knowledge scores.

The older homemakers purchased more food items in all but two of the Basic Seven food groups than did the younger homemakers. The two groups were; (1) meat, fish, poultry, and eggs and (2) butter, margarine, and oils. The effect of employment outside the home on the food purchases of the homemakers could not be studied as three of the five mothers employed did not keep food purchase records. The two employed mothers who kept food purchase records only worked half time.

The food group emphasized as essential by most homemakers was the group of meat, fish, poultry, and eggs. The food group containing butter, margarine, and oils received the least emphasis from the homemakers of any of the food groups. Other food groups that received little emphasis were those containing vitamin-rich fruits and vegetables.

The evidence collected in this study indicated that the homemaker's total food purchases were of higher nutritive value and more well balanced than would be anticipated from their nutritional knowledge scores.