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THE CHILD'S INFLUENCE ON  
PARENTAL PURCHASE PATTERNS FOR  
BREAKFAST FOODS

by

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A THESIS SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES  
(Department of Administrative, Adult and Higher Education)

We accept this thesis as conforming  
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

April, 1983

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## **ABSTRACT**

This study was conducted to examine the effectiveness of the preschool child in stimulating a behavior change within the parent(s) with respect to food purchase patterns and choices offered to the child. One hundred and three families associated with six nursery schools located within the Simon Fraser Health Unit were involved in the study. The nursery schools were randomly assigned to one of three experimental conditions: the control group whose children carried on with routine nursery school activities, the transfer materials group whose children received nutrition pamphlets and the treatment group who in addition to receiving nutrition pamphlets also participated in an activity oriented breakfast program over the course of four weeks. Following the four week period the parents of all children received a questionnaire which was brought home by the child and returned anonymously by the parent to the nursery school. A response rate of 89 percent was obtained. The questionnaire used in the study examined two aspects of parental behavior: the food purchase patterns and those patterns centering around the types of foods offered to the preschool child at breakfast.

The parents' behavior patterns were analysed to determine the frequency of purchase of milk products, bread products, fruits, protein sources and cereals containing in excess of fifteen percent sugar and the frequency with which these foods were offered to the preschool child for breakfast. In general, there were no significant differences in the purchase or "offering" behavior of parents in the three groups. The only differences pertained to parental purchases of cereals with more than fifteen percent added sugar. The control group reported making a greater number of purchases of cereals with added sugar than did either of the treatment groups ( $p < .004$ ). It was conjectured that sweetened cereal scores of the treatment, transfer and control groups were different because shoppers "commitments" to cereals are less stable than "loyalty" to other products. Also, it appears that previous "persuasion" efforts have sensitized mothers to problems associated with high sugar foods. It is possible that the breakfast programme tested here evoked or reinforced previously learned postures concerning cereals with added sugar.

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## ACKNOWLEDGEMENTS

The researcher wishes to acknowledge the contributions of the following:

The British Columbia Ministry of Health for granting the education leave to pursue graduate work in this area.

Dr. Roger Boshier, Department of Administrative, Adult and Higher Education, Faculty of Education, University of British Columbia, for the counsel and guidance in planning and conducting this study.

Dr. Todd Rogers, Faculty of Education, University of British Columbia, for assistance particularly relating to the development of the testing instruments and the statistical analysis of the data.

The nursery school teachers and the parents who enthusiastically gave time and energy to the study.

Finally, a special thanks to the preschool children involved in the study.



## CHAPTER I

### INTRODUCTION

Anyone who has ever observed an adult shopping with a preschool child is aware that children exert a powerful influence on their parents' selection of food. Similarly, if one watches television commercials on Saturday mornings, it is apparent that advertisers attempt to influence preschool children. The New York Times in November of 1980 reported that even the U.S. Department of Agriculture had commissioned "Spiderman" to carry a nutrition message about healthy snacks to six to twelve year olds. Berey and Pollay (1968) and Ward and Wackman (1972) have identified the child as playing a potentially important role in the parent decision making process. Thus, this study was conducted to further investigate the possibility of the child functioning as a change agent. The aim of the study was to quantify the extent to which the preschool child generates parental behavior change.

Interest in the concept of children as potential change agents, capable of directing adult behavior patterns, evolved as a result of personal experiences in the field of community nutrition education. The parameters selected for this study were those which allowed for the inclusion of preschool children living in a suburban area and enrolled in a nursery school program.

This study was carried out during May and June of 1982 in the Simon Fraser Health Unit with the endorsement of Dr. F.J. Blatherwick, Medical Health Officer. The Simon Fraser Health Unit, part of the Greater Vancouver Regional District, is primarily an urban area including the municipalities of New Westminster, Coquitlam, Port Coquitlam and Port Moody.

New Westminster was excluded from the study upon the advice of the committee due to the fact that its inclusion would have increased the heterogeneity of the target population. The three municipalities (Coquitlam, Port Coquitlam and Port Moody) chosen are comprised of a high proportion of young families. This resulted in a decision to restrict the study to families who had preschool children in attendance at one of the provincially licensed nursery schools. This criterion also facilitated the organizational aspects of the study.

### **Statement of the Problem**

The commonly held approach to education is to view the adult as directing the learning and subsequent behaviors of children -- the adult assumes the role of educator and the child the role of learner. The purpose of this study was to experimentally research the reverse situation. This study

was designed to examine the extent to which the preschool child stimulates behavior change within the parent(s) with respect to food purchase patterns and foods offered to the child. The child in this study was considered to be a change agent.

### **Definition of Terms**

Breakfast program: a coordinated set of nutrition education activities related to breakfasts, presented to the children of selected nursery schools by their regular preschool supervisor over a four week period. Offering an actual breakfast was not included in the program.

Canada's Food Guide: "a guideline for food choices of Canadians developed by nutritionists as a mechanism to interpret the Canadian dietary standards" (Provincial Child Care Facilities Regulations, 1979) and used in the study to guide the development of breakfast program objectives and the analysis of the data.

Foods eaten: breakfast foods actually consumed by the child.

Foods offered: breakfast foods offered to the child by the parent but which may or may not have been consumed.

Food purchase patterns: a description of parents' food buying behavior as determined by foods which parents indicate that they have bought over the past month and foods currently in the home at the time of questionnaire completion.

Nursery school: a setting where the opportunity for "social, emotional, physical and intellectual growth" is provided for "children 32 months to the age they enter school in a group setting for periods of not more than three consecutive hours" (Provincial Child Care Facilities Regulations, 1979). In this study nursery school and preschool are synonymous.

Preschool child: a child between the ages of 36 and 66 months.

Preschool supervisor: a person who has completed the basic minimum training and holds a preschool supervisor's letter of qualification. In the study, the preschool supervisor provided the instruction to the children and also acted as the liaison with the parents.

Traditional program: describes those activities providing for the development, care and protection of the children, but which do not include a nutrition component.

Transfer Materials: the collection of pamphlets relating to nutritious breakfasts which were distributed to parents via their children.

### Hypotheses

The two general hypotheses considered in this study were:

(1) There is no significant difference in the parental purchase patterns for breakfast foods among those parents whose children

- (i) were involved in a breakfast program,
- (ii) received transfer materials, and those who
- (iii) carried on with the traditional nursery school program.

(2) There is no significant difference in the quality of breakfasts offered to the child by parents of children in the breakfast program, those who received transfer materials only and those who carried on with the traditional program.

Two hypotheses were selected for investigation because more than one decision point is involved in the behavior change being evaluated. Through the education of the child and subsequently the parent lies the possibility that the parent may modify the selection of specific foods to be purchased, but may not offer them to the preschool child. In other words, the foods may be available, but the behavior has not carried through to the extent that the parent thinks to offer the new food. The selection of two hypotheses allows investigation of this stepwise modification of parental behavior.

Thus, the dependent variables in this study were:

(1) parents' purchase decisions regarding breakfast foods and

(2) parents' choices with respect to the breakfast foods offered to the child (a distinction was made between "offered" and "consumed" because of the parental behaviors being the focal point as opposed to the children's behaviors).

The independent variable was the treatment program assigned:

(1) a four week Breakfast Program

(2) the distribution of Transfer Materials over a four week period

(3) the Traditional Program which excluded all nutrition related activities for a four week period.

The specific hypotheses tested were:

A. Hypothesis 1

There is no significant difference among the parents of the three treatment groups regarding the frequency of purchase of:

- a) milk products
- b) whole grain bread and cereals
- c) cereals with more than fifteen percent added sugar
- d) high quality protein sources and
- e) fruits and fruit juices

B. Hypothesis 2

There is no significant difference among the parents of the three treatment groups regarding the frequency of:

- a) offering breakfasts to their children
- b) offering a nutritious beverage at breakfast
- c) offering a protein source of high quality at breakfast
- d) offering a whole grain bread or cereal choice and
- e) offering a cereal containing in excess of fifteen percent sugar.



## CHAPTER II

### LITERATURE REVIEW

Although the child is not formally recognized as a method of adult education; the child is potentially a dynamic and successful change agent. Three avenues have been chosen for exploration to verify this assumption: (1) the literature, (2) local professionals working in related fields and (3) a survey of selected programs from across Canada.

#### The Literature

An ERIC (Educational Resources Information Centre) search revealed many abstracts describing programs or studies aimed at altering child behavior through parent education; the exact opposite of the question posed. Unfortunately, due to the nature of the ERIC search system the computer was unable to discriminate the direction of the impact desired. Thus, a search of the relationship between the child and parent education produced 212 abstracts. None dealt with the child's influence on parental behaviors.

A second search using MEDLINE was completed in hopes of uncovering information related to health education programs directed toward children, yet aimed at the modification of parental behaviors. Once again the search revealed a void.

Gates and Campbell (1981) examined the dietary concerns and practices of 176 mothers of preschool children and reported on parents' attempts to make changes in children's eating habits. This was typical of the direction of impact most frequently cited in the literature.

The reply from the librarian at the university's Computer Bibliographic Search Service supported this conclusion in her statement which read "Just as I suspected. I was unable to weight the search toward educating the parent via the child" (Note, 1). Of 44 citations printed, seven appeared as remote possibilities, but unfortunately, none of these illuminated the question originally formulated. At best, the literature in this area can be described as sparse.

### **Local Professionals**

As a result of the output received from the literature searches, the decision was made to abandon the global view and collect "local" viewpoints and documentation. Professionals working with children as change agents within local programs were selected. They were in education (including early childhood and adult education), linguistics, nutrition and commerce. Contact with resource people in each area was initially by telephone followed by

a letter reiterating the research question, and where appropriate by follow-up interview.

Of the disciplines approached, the marketing area of commerce offered the greatest promise. The other areas, as might be expected, were very much involved with the traditional approach where parents were perceived as influencing children. However, one exception was noted; a study conducted by Csapo (1974) involved elementary students in modifying teacher behavior. Although the research sample was small this was the first documentation found to suggest that children could assist an adult to modify his/her own behavior.

The child's influence on parental purchase patterns has been given most consideration by those involved in marketing research. Advertising in particular is concerned with this impact. Although these areas have identified the child's influence on parental yielding, they have also pointed out the lack of research. Assael acknowledges the lack of research into children's influences and states that "given this potential influence it is surprising that almost all studies of family purchase decisions have focused on husband and wife influences and have excluded children." (1981, p. 357). Even the American Federal Trade Commission's concern over the effects of television advertising on children

failed to examine the parent-child interaction in family decision making (Assael, 1981).

The volume of marketing literature concerned with the issue of the child's influence on parental behavior is not overwhelming, but two studies appear to be classic and reappear in the most recent texts on the subject of consumer behavior. They are those conducted by Ward and Wackman (1972) and Berey and Pollay (1968). Ward and Wackman studied children's (5-12 year olds) attempts to influence mothers' purchase behaviors and degrees of yielding to influence attempts. Influence attempts defined as "children's attempts to influence mothers' purchases of various products" (Ward and Wackman, 1972, p. 316) were found to decrease with age while the frequency of mothers' yielding to the purchase requests increased as the child got older.

Berey and Pollay found child-centeredness and purchase patterns to be correlated ( $p < .05$ ). The more child-centered the mother (i.e. the one who took greater care with her child) the more likely she was to buy what was "right" for the child as opposed to giving in to the child's wishes. Thus, both studies implicated the child as an influencer of parent purchase behaviors; the degree of influence mediated by both the child's age and the personality of the parent.

The research studies which emerged as a result of contact with local professionals suggested that:

1. the child does exert an impact on adult behaviors.
2. additional research is needed regarding the magnitude of the child's influence on adult behavior.

### **Cross Canada Review**

A third strategy involved communicating with selected resource people across the country. In so doing, it was hoped that programs not formally written up in the literature would surface. Provincial contacts were made in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario and Prince Edward Island. The resource people contacted occupied a variety of positions within the private and public sectors. Provincial health departments, other university nutrition departments and community organizations such as the 4-H Council and the Heart Foundation were among those who replied to the questions:

\*What Canadian youth programs are operational which function as a means of providing information to the parent(s)?

\*What is the best age to provide children with information in order for it to reach the parent(s)?

From the eight replies received it became clear that the responses to both questions were similar across the country. Each reply had its own phraseology but this

comment from Prince Edward Island succinctly describes all the responses: "I am not aware of any programs or literature which deal with the issue of parent education via the child." (Note, 2).

Two of the provinces (Manitoba and Prince Edward Island) involved the child in education programs as a vehicle by which messages and notices were delivered to the parents. No education per se was involved. Alberta's "Nutrition At School" program had parent education incorporated into the goals and objectives of the child's nutrition education program, but no further references to this inclusion were found (Note, 3). Of the feedback received from people who occupy key roles across the country, no one was able to detail programs formally utilizing the concept of the child as a change agent.

Although the provincial contacts were unable to provide clearly defined answers to the questions presented, they did provide encouragement to pursue this concept. The general tone of the replies can best be described as an interest in this "new and very interesting approach to adult education" (Note, 4).

In retrospect, the answers to the initial questions posed were difficult to find. However, both the literature and the professional contacts suggested that this was an area for research. Marketing is likely to continue

exploring this avenue because of recent findings suggesting that it is the child who initiates discussions about product purchases and consumption (Assael, 1981). Some groups and organizations, such as commercial ventures, already see the potential while nutrition education planners are just being alerted to the possibilities of the child as a means of educating the parent. Enthusiastic replies from the provinces suggested that this idea should be explored from an educational perspective.

The notion of using children to educate adults appears to be novel. The existing literature is replete with studies describing the impact of parent education and parent behaviors on the development of children, but not vice versa. The child acting as the change agent is the reverse of the traditionally accepted model of education as shown in Figure 1.

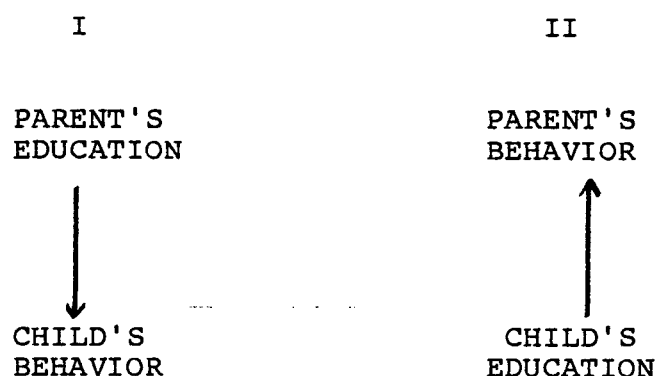


Figure 1: Direction of Impact of Education on Behavior

In Model I, it is easy to identify a variety of programs which are offered to parents in order for them to modify their child's behavior patterns. An example currently used in the public health field is the STEP program: Systematic Training for Effective Parenting. To find documented examples of Model II is more difficult. However, a closer look at television commercials directed toward children provides evidence that various organizations such as Kelloggs, General Foods, MacDonalds and Mattel attempt to "educate" the child in order to affect parental purchase patterns. Due to the highly competitive nature of the marketplace data regarding the effectiveness of educating the child is not readily available. Yet it is quite apparent to even the most casual observer that their techniques do work. Millions of dollars are invested annually in the influence children are purported to have on parents' behaviors.

Societal and technological changes also provide real-life examples of the pattern depicted by Model II. The factor "family togetherness" as conceived by Boshier (1982) identifies reasons for adults participating in adult education classes (e.g. in order to keep up with others in the family, to answer questions asked by the children) and points to the impact which the child may have on the parent during times of change. One such change which may stimulate



participation in an educational activity arises from the need parents feel to become more knowledgeable about the technology familiar to their children (i.e. the child's education is stimulating a parental behavior change). An example of this situation is demonstrated by the parents who enroll in computer courses or who purchase home computers as a result of the education which their child receives with the computer at school.

Although there are day to day examples of the influence which the child may have on parents' behaviors the questions remain: How effective is the child as a change agent? Is one age any better than another? and How compatible is this concept of the child as a change agent with the field of adult education? These questions, at present, do not have definitive answers. If one stops to take time to observe and reflect upon the influence which children exert on adults the magnitude of this relationship becomes more clear. Using Assael's phraseology, the phenomenon of "child-power" is growing and likely to continue to do so as children increase in their degree of independence during the 80's.

It is this perspective that inspired further study of the process of utilizing the child to educate parents and to ultimately stimulate behavior change. The merits of the child as a unique change agent were evaluated further in this research study.

# CHAPTER III

## METHOD

### Research Design

The design selected for this field based research was the nested or hierarchial design which in this case featured a post test only. Three treatment conditions were examined: a breakfast nutrition education program, a program utilizing nutrition transfer materials, but no nutrition education and a treatment condition where there was no nutrition education nor were transfer materials distributed. Six nursery schools were randomly assigned to the three treatment conditions creating a CRH - 3(2) design (Figure 2).

	A Breakfast Program		B Transfer Materials		C Control (neither A nor B)	
Centres	I	II	III	IV	V	VI
Subjects	18	15	22	21	9	18

Figure 2: Diagramatic Representation of the Research Design

The specific format of Figure 2 resulted from the response to letters mailed to each nursery school in the Simon Fraser Health Unit area. These letters described the proposed research study and invited the centres to participate. It was requested that the decision to participate be made jointly between the preschool supervisor and the parent executive. This was important because the preschool supervisor acted as the researcher's contact with both the parents and the children. Once the decision to participate was made consent forms were completed and returned to the Simon Fraser Health Unit. Since the research project was endorsed by the health unit all correspondence was directed to the health unit address. Copies of the invitational letter and the consent form appear in Appendix A (Correspondence). The response rate and the comments appear in Table 4.

Centres were randomly assigned to treatment groups following the April 2 deadline for the receipt of consent forms. Potential participants who had agreed to accept any one of the treatments were included in the random assignment. The study took place over five consecutive weeks: four weeks devoted to the program treatments and one week devoted to the data collection. The study was the post test only design shown in Figure 3.

$R \quad X_1 \quad \emptyset_1$  $R \quad X_2 \quad \emptyset_2$  $R \quad X_0 \quad \emptyset_3$ 

Figure 3: Schematic representation of the post test only design.

### **Treatment Variables**

#### **Treatment Group A: Breakfast Program**

Two centres were assigned to each treatment resulting in a total of 33 subjects participating in Treatment A. Treatment A consisted of a Breakfast Nutrition Education Program presented to the children by their regular preschool supervisors over a four week period from April 26 through to May 21. The Breakfast Program involved the children in cooking experiences together with nutrition education activities integrated into their regular routine on a twice weekly basis. The cooking or food preparation activities were used to expose the children to new breakfast food choices and to reinforce the other nutrition education activities (the Breakfast Check and Puzzle, discussions, art projects). Pamphlets relating to each week's theme were sent home with the children.

Teachers were interviewed prior to the commencement of the program, and detailed, written instructions for the nutrition activities were provided as a means of standardizing treatments (Appendix B). Teachers were asked to follow the instructions provided for each class. They were allowed to vary the day of the week on which the class was given only if absolutely necessary. This happened on one occasion due to a previously scheduled field trip. All program expenses were covered by the research study thereby eliminating the possibility that some activities might be excluded due to the centre's financial limitations.

**Treatment Group B: Transfer Materials Only**

Treatment B was provided to two centres involving 43 subjects. Treatment B included the distribution of nutrition education pamphlets defined as "transfer materials" to the parents via the child. This group was not involved in any other nutrition education activities and discussions about the pamphlets being taken home were strictly avoided. In this treatment condition the child was acting as a "transfer" agent only -- responsible for getting the materials home to the parent. The topic of each week's literature corresponded to that being taught in the Breakfast Program. Thus, the parents of Group A and B were receiving the same transfer materials each week although

Group A supplemented their distribution with nutrition education activities for the children. In neither case was any nutrition education directly provided to the parents.

Topics for the four weeks were modelled after the Canada Food Guide with the focus being:

- |          |   |                                     |
|----------|---|-------------------------------------|
| Week I   | - | Milk and Milk Products              |
| Week II  | - | Wholegrain Bread and Cereal Choices |
| Week III | - | Protein Sources for Breakfast       |
| Week IV  | - | Fruits for Breakfast                |

#### Treatment Group C: Control

Finally, 27 subjects from two centres were assigned to the control group which was asked to refrain from conducting any nutrition education activities during the four week period, and to curtail their distribution of all nutrition pamphlets and literature during the study period.

#### **Comparability of the Centres**

Apart from the treatment conditions assigned to centres through the process of random assignment, the centres were comparable in most respects. This is further supported by information collected through interviews conducted with centres' staff. Information was obtained about hours of operation, degree of parent involvement, area from which the children travel, the fee structure and the physical

description of the facility. Table 1 describes the information collected. Although the characteristics of the nursery schools were similar, the process of randomization served to enhance the comparability of the centres.

Table 1

## Characteristics of Participating Nursery Schools

Centre & Location	Provincially Licensed	Morning Classes	Degree of Parent Involvement	Child lives in area of centre	Fee Structure	Owner Operated Parent Assn.	Recent Attendance of Supervisor at a Nutrition Workshop	Comments
Centre I - a nursery school located in a Scout Hall	✓ <sup>a</sup>	✓	R <sup>b</sup>	✓	\$30/ month	Assn.	X	one preschool supervisor
Centre II - located in the supervisor's home	✓	✓	R	✓	\$29/month 2 days \$36/month 3 days	Owner	X	one preschool supervisor
Centre III - located in a school classroom	✓	✓	R	✓	\$3/session \$27/month 2 days \$39/month 3 days	Owner	X	Also has a daycare associated with it at the same location; the centre has full access to school facilities, e.g. gym
Centre IV - located in a school classroom	✓	✓	N	✓	\$26/month 2 days \$39/month 3 days	Owner	X	two regular staff members concerns discussed with parents as necessary other- wise no formal involvement with centre's activities
Centre V - located in a ✓ multiple dwelling housing complex		✓	N	✓	\$2/hour billed monthly	Owner	X	also has a daycare assoc- iated with the preschool; no organized parent involve- ment; three staff members
Centre VI - located in a church hall ✓		✓	R	✓	\$33.86/ month	Assn.	X	one preschool supervisor

Note <sup>a</sup> ✓ denotes Yes; X denotes No  
<sup>b</sup> Degree of Parent Involvement: R-on a regular basis, O-occasionally  
when parents want to participate or when there is a special event planned,  
N-parents are not involved in activities other than on an observational level



## Measuring Instruments

### Format

It was necessary to develop an instrument to measure the variables identified since the focus of the study proved to be an investigation into a new concept. The final questionnaire, which was three pages in length, consisted of two parts. Part One, which dealt with the first hypothesis, served to identify the respondents' demographic characteristics and to ascertain the food purchase patterns of the parents.

In order to evaluate the impact of treatment, 147 potential breakfast items were listed according to their presence on the shelves of a local supermarket and presented to the parents in the form of a checklist. A segment of the Preschool Breakfast Program Parent Questionnaire is shown below:

#### 10. WHAT FOODS....

Did you buy in the LAST MONTH? (Note: they may still be in your household or may be all used up.)		Are in your household TODAY? (Please take time to look.)	
Did you buy Any? (Check)		Is there any? (Check)	
Milk:			
chocolate	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
evaporated, condensed	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
whole, homogenized	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
2%	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
skim	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Butter milk	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Eggnog, canned or eggnog flavorbeads	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Milk Mate	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Instant Breakfast	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Hot Chocolate Mix	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Brown Cow Chocolate Syrup	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Postum	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Ovaltine	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Tea/Coffee	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Figure 4: Excerpt from Part One of Parent Questionnaire

The foods were then classified into ten subgroups based upon accepted nutrition practice. These subgroups included milk products, modified milk products, whole grain breads and cereals, other baked products, cereals with greater than fifteen percent added sugar, cereals with less than fifteen percent added sugar, high quality protein sources, low quality protein sources, fruits and fruit juices and other beverages. Appendix C gives details of the questionnaire and of specific foods included under each food group for the purposes of the analysis.

Part two provided information related to the second hypothesis and asked the parent to record breakfast foods offered to and those eaten by the child. Part of this section appears in Figure 5.

SECTION TWO: Complete for each day your child attends preschool during the week of May 24-28th. Have your child bring it to preschool on each of these days.

FOODS OFFERED TO AND EATEN BY PRESCHOOLERS

1. Date: \_\_\_\_\_
2. Did you offer breakfast to your preschool child this morning? Yes ☐  
No ☐
3. Please mark with a CHECK (✓) those foods offered to your preschooler this morning (include those foods offered verbally or actually prepared for the child). STAR (\*) those foods which your youngster actually ate. The list includes a variety of foods, but if your child ate something not on the list, please include it in the section "Others".

FOODS	✓	"*"
	if offered	if eaten
Whole milk . . . . .	( )	( )
2% milk . . . . .	( )	( )
Skim milk . . . . .	( )	( )
Chocolate milk . . . . .	( )	( )
Ovaltine . . . . .	( )	( )
Unsweetened fruit juice . . . . .	( )	( )
Sweetened fruit juice . . . . .	( )	( )

Figure 5: Excerpt from Part Two of Parent Questionnaire

### Content Validity

While developing the questionnaire feedback was obtained from colleagues (two nutritionists currently employed in public health and one fellow graduate student in adult education), parents and an expert review provided by advisors on three separate occasions. All suggestions and comments were carefully considered in order that a format and a length would be obtained which would encourage completion while also yielding the desired data. The final questionnaire is shown in Appendix C.

### Reliability

In order to contribute to the reliability of the questionnaire or the tendency for respondents to answer consistently over time, consideration was given to providing clear directions, checking the readability level and word usage, avoiding the use of jargon, and to ensuring the anonymity of the respondents. Formal measures of reliability and validity were not carried out on Part One.

Part Two of the questionnaire did undergo somewhat more rigorous checks on validity and reliability. This section of the questionnaire regarding the breakfast patterns of the preschool child was carried out in the following manner.

### Validity check

1. Parents completed the questionnaire after breakfast on one of the days during Week V of the study, and gave it to the child to return to the preschool supervisor.

2. Once the child was at nursery school, the supervisor asked each child individually "What did you have for breakfast this morning?" The response was recorded for each child at approximately nine o'clock.

The percent of children found to agree with their parents' responses was greatest for questions related to whether or not breakfast was offered (87 percent agreed), whether or not cereals were eaten for breakfast (87 percent agreed) and for the consumption of a nutritious beverage at breakfast (75 percent agreed). There was lesser agreement between parents and children on the consumption of protein sources and bread-type products at breakfast (Table 2).

Table 2

## Breakfast Foods Eaten as Reported by Parents and Children

Breakfast/Foods Eaten	Positive Parent Replies (number)	Number of Children's Replies Agreeing	Percent Agreement
Breakfast Offered	75	65	87
Nutritious Beverage Eaten	69	50	75
Protein Eaten	24	12	50
Bread-type Food Eaten	43	24	56
Cereal Eaten	52	45	87

Reliability check

A subsample of children were questioned by the same supervisor at both nine and eleven o'clock, on the same day, with the question "What did you have for breakfast this morning?" These responses were recorded and matched. In this way there was a check on the consistency with which children completed Part Two (Table 3).

Children's responses to breakfast foods eaten were checked for consistency using the test-retest method. A subsample of six children (one from each centre in the study) were chosen to verify their responses. One child refused to respond at eleven a.m. indicating that he had already told the teacher what he had eaten for breakfast! Of the remaining five who responded there was 100 percent consistency in replies for all categories except for the type of bread product eaten (Table 3).

Table 3

## Consistency of Children's Recall of Breakfast Foods Eaten

Breakfast/Foods Eaten	Positive Replies 9 a.m.	Positive Replies 11 a.m.	Percent Consistency
Breakfast Offered	5	5	100
Nutritious Beverage Eaten	5	5	100
Protein Eaten	2	2	100
Bread-type Food Eaten	4	3	75
Cereal Eaten	2	2	100
Total	17	16	94

### Validity

Validity interviews were scheduled into the design whereby a personal interview was planned with approximately fifteen percent of the respondents. However, because supervisors chose to collect all questionnaires and to return them all at once a time delay from the actual date of return by parents and the date of collection from the centres was created. Due to the perishable nature of some of the foods being investigated, it was unrealistic to conduct the planned interviews as a validity check. The absence of these validity interviews does present a limitation to the study.

## **Data Collection and Analysis**

### Collection

Since the two sections of the questionnaire were to be returned at two different times, both sections of the questionnaire were given code numbers to facilitate matching. Parts One and Two of the questionnaire were sent home at the same time and were accompanied by a covering letter cosigned by the preschool supervisor and the researcher (see Appendix A). This letter specified the instructions for the return of the questionnaires: Section One was returned and collected at the next preschool session

while Section Two was retained and returned during the week of May 24-28. Questionnaires and accompanying letters were distributed to the parents through the children who were in attendance at nursery school. Each child took the questionnaire home, parents completed it and returned it to the nursery school where a collection envelope was provided. This procedure offered anonymity to the parents in that the preschool supervisor was not required to do any processing of the completed questionnaires for Part One. Once the supervisor had collected the questionnaires they were picked up from the nursery school by the researcher.

The collection of questionnaires was followed by a notice sent home with all children as a reminder that the questionnaires were due. Subsequently, a follow-up letter and a duplicate copy of the questionnaire was sent to those who had failed to respond as of June 8. These letters produced four additional responses.

In those cases where Part One had been returned, but Part Two had not, the parent was telephoned to secure responses to Part Two (regarding breakfast foods offered to and eaten by their preschool child). Questionnaires for respondents in the final population were coded using the schedule which appears in Appendix C. The coded sheets were then keypunched by staff of the University of British



Columbia Computing Centre and a subsample verified by the researcher. Two questionnaires per centre were verified for a total of twelve (15.8 percent).

### Preliminary Background to the Analysis

The design chosen for this study was a nested hierarchical design which, in normal circumstances, would have been analyzed using a multivariate analysis. However, due to the fact that some questionnaires were incomplete and had to be excluded from the final analysis it was decided to collapse the centres into the three treatment conditions. Centres I and II were combined to form Treatment A (Breakfast Program) with 23 respondents, Centres III and IV to form Treatment B (Transfer Materials) with 32 respondents and Centres V and VI to form Treatment C (Control) with 22 respondents. The variables were discrete, dichotomous and polychotomous variables, and subsequently analyzed using the oneway analysis of variance procedure. All analyses were accompanied by analyses of the homogeneity of variance. Departures from homogeneity were not observed when the Bartlett-Box test was applied to the data. The latter test for homogeneity of variance was selected because there was a lack of equality in sample size for the experimental groups.

### Main Analysis

The data were analyzed using the "Statistical Package for the Social Sciences Version 9.00 (under MTS)". Cross-tabulations and oneway analysis of variance were employed to analyze the demographic variables while oneway analysis of variance was used with the variables relating to the hypotheses being tested. Where a significant F was obtained the Scheffe test was run at a relaxed  $\alpha$  of .10 (Ferguson, p. 309). Multiple regression was used in an attempt to identify variables associated with the one significant difference, sweetened cereal score. All statistical tests were examined at the five percent level of significance.

### Limitations and Assumptions

As the study conducted was undertaken in the field setting as opposed to a laboratory type environment the possibility existed that groups would differ from one to another in ways beyond the control of the researcher. An attempt was made to achieve comparability and equivalence by randomly assigning nursery schools to treatments. This was carried out using a hat draw for the nursery schools who had indicated an interest in participating in the study.

Table 4 illustrates the responses to the invitation describing the study and inviting the nursery schools' participation.

Because the centres expressing a desire to participate in the study were randomly assigned to the treatments not the children, the study became a quasi-experiment as opposed to a true experiment due to the researcher's lack of total control over which children would receive the experimental treatments. Of the seven centres replying affirmatively, six were selected and randomly assigned to one of the three treatment conditions. Thus, for this study the researcher was able to maintain control over the independent variable only insofar as the ability to randomly assign centres. A limitation to this study was the inability to involve the target population of all preschool children and their families in the study. The results obtained are generalizable only to those centres with the characteristics identified in Table 1.

Table 4  
Responses to Requests for Participation

	Number
Nursery schools in the Simon Fraser Health Unit area as of March 1, 1982	18
Invitations to participate distributed	18
Replies received	16
Centres interested in participating	7
Centres declining to participate	9
Reasons for declining:	
- in the process of moving	1
- recently did a nutrition program	2
- short staffed	1
- study would be inconsistent with the nursery school's philosophy	1
- information would have to be translated into French	1
- only have 3 year olds, no 4's	1
- too busy	1
- not interested	1

Although an attempt was made to control for the manner in which the treatments were carried out it was not possible to rule out all extraneous factors since the preschool supervisor was the liaison between the researcher and the children as well as between the researcher and the parents. Care was taken to emphasize the need for the centre to carry on with regular activities throughout the duration of the study.

### Internal Validity

Given that this lack of control over the specific daily activities of the centres could pose a threat to internal validity, frequent visits to the centres along with telephone conversations with the supervisors were included as part of the study's design. The aim of this monitoring was to detect any excess variability which may have existed between the centres. The visits to the centres were made at varying times with each visit having a specific purpose:

Visit #1 - made prior to commencement of the study in order to personally inform the supervisor which treatment her centre had been assigned to, and to verbally describe what was expected over the five weeks.

Visit #2 - made prior to the study to personally deliver written instructions detailing the activities of the centre as they related to the study, and to answer questions which had arisen since Visit #1. Standardizing the treatments through the steps taken during Visits #1 and #2 decreased the problems posed by treatment heterogeneity.

Visit #3 - a brief, informal visit to each centre to see if there were any difficulties and to ask "what had been done during Week I of the study?"

Visit #4 - made during Week II which was to obtain supervisor's signatures on the covering letters for the questionnaires and to simultaneously check on what had happened during that week.

Visit #5 - during Week III the questionnaires were distributed to each centre and a short observation was made of the centre's activities.

Further to the visits, weekly telephone conversations were held with the supervisors who were assigned to the Breakfast Program in order to identify problems and to receive feedback. Further details of these visits are documented in Appendix D. From the information gathered as a result of the visits and conversations it was assumed that the centres were following the study's guidelines. Thus, as far as is possible in a field setting such as this, potential threats to validity were taken into account.

## CHAPTER IV

### RESULTS

#### Return Rates

Using the six centres randomly assigned to the experimental conditions, a total of 103 families were sent questionnaires. Of the 92 questionnaires returned, 77 were usable in their entirety. The remaining fifteen questionnaires were excluded from the final population due to incomplete data regarding food purchase patterns. Of the questionnaires completed and returned 85 percent were usable for Part One while 100 percent were usable for Part Two. Those deemed unusable for Part One were a result of some respondents failing to turn the page completely over. As a result part of the questionnaire was overlooked by these respondents.

Supervisors suggested that others may have failed to return their questionnaires because they got caught up with many other activities late in the school year. One individual refused to complete the questionnaire because "it was an infringement on the family's privacy".

Table 5 summarizes the return rates.

Table 5

## Return of Questionnaires by Centre

Centre	Number of Questionnaires Distributed (Number)	Number of Questionnaires Returned (percent)	Number of Totally Usable (percent)	Usable per Treatment (percent)
Breakfast Program				
I	18	16 (88.9)	15 (83.3)	23 (69.7)
II	15	14 (93.3)	8 (53.3)	
Transfer Materials				
III	22	16 (72.7)	13 (59.1)	32 (74.4)
IV	21	21 (100)	19 (90.5)	
Control				
V	9	7 (77.7)	6 (66.7)	22 (81.5)
VI	18	18 (100)	16 (88.9)	
Total	103	92 (89.3)	77 (74.7)	



## Characteristics of the Sample

### Gender of respondent

Question One was designed to identify the respondent completing the questionnaire. In all cases it was the preschool child's mother who completed the questionnaire.

### Area of residence

A description of the population was obtained from Part One of the questionnaire distributed to mothers. As expected, all mothers resided within the boundaries of the Simon Fraser Health Unit. Their area of residence by municipality is shown in Table 6.

Data pertaining to the mothers' employment patterns, gross family income, family size, and the influence of various family members on breakfast food purchase patterns and of the television viewing time of the preschool child are summarized in Table 7.

Table 6  
Breakdown of Respondents by Area of Residence

	Treatment n = 23		Control n = 22		Transfer n = 32		Total n = 77	
Area of Residence	Number/ Percent		Number/ Percent		Number/ Percent		Number/ Percent	
Coquitlam	15	65.2	3	13.6	30	93.8	48	62.3
Port Coquitlam	8	34.8	14	63.6	2	6.2	24	31.2
Port Moody	0		5	22.7	0		5	6.5
Total	23	100	22	100	32	100	77	100

In a post test only design with random assignment it is crucial to know the extent of the similarities and/or differences amongst the groups. Thus, a oneway analysis of variance was carried out for each of the demographic variables. The treatment, control and transfer materials groups were found not to differ significantly with respect to employment, days worked per month, gross family income, family size, ages of the children, presence of other family members, degree of influence of children and other family members on food purchases, the presence of television and the television viewing time. Hours worked per week, travel time to work and the degree of influence of the spouse on food purchases were found to differ significantly (Table 7).

Table 7

Data Pertaining to the Equivalence of the Treatment, Control and Transfer Materials Groups

Variable	Treatment n = 23		Control n = 22		Transfer Materials n = 32		F-ratio	F-prob.
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Employed	1.35	0.49	1.45	0.51	1.19	0.40	2.32	.11
Hours <sup>a</sup> Worked/Week	0.74	1.21	2.09	2.78	0.59	1.43	4.69	.01*
Days Worked/Week	1.09	1.65	1.77	2.16	0.53	1.37	3.45	.04*
Travel Time to Work (minutes)	7.65	13.62	17.14	23.03	3.06	7.54	5.67	.005*
Gross Family Income <sup>b</sup>	265.21	223.83	288.64	143.87	301.56	173.31	0.27	.77
Family Size	4.17	0.83	4.23	0.75	4.34	0.70	0.38	.70
Number of Children:								
under 2 years	0.17	0.39	0.27	0.46	0.26	0.44	0.34	.72
2 to 4 years	1.39	0.58	1.23	0.43	1.38	0.49	0.74	.48
in kindergarten	0.13	0.34	0.14	0.35	0.13	0.34	0.007	.99
in elementary school	0.39	0.58	0.50	0.51	0.56	0.62	0.59	.56
in high school	0.04	0.21	0	0	0.03	0.18	0.44	.65
out of school but at home	0	0	0	0	0	0	0	
Other family members:								
spouse	0.96	0.21	0.91	0.29	1.00	0	1.45	.24
grandmother	0.04	0.21	0.05	0.21	0	0	0.72	.49
grandfather	0.04	0.21	0	0	0	0	1.18	.31
other relative	0	0	0.05	0.21	0	0	1.26	.29
boarder	0	0	0.09	0.29	0	0	2.64	.08
nanny	0	0	0	0	0	0		
Age of preschooler (months)	50.61	16.93	56.14	8.33	54.63	7.20	1.49	.23
Degree of influence of:								
child under 2	0.26	0.54	0.77	1.57	0.34	0.79	1.66	.20
child in preschool	3.04	0.98	3.14	1.28	2.88	1.52	0.28	.76
2 to 4 year old								
not in school	0.74	1.51	0.55	1.01	0.94	1.83	0.43	.65
elementary age								
child	1.43	1.67	1.64	1.53	1.63	1.93	0.10	.90
teenagers	0.17	0.83	0	0	0.09	0.53	0.52	.59
self	5.23	1.70	5.50	1.34	5.50	1.14	0.34	.71
spouse	3.30	1.49	3.82	1.71	4.31	1.06	3.49	.04*
other family members	0.22	1.04	0.50	1.44	0	0	1.79	.17
Presence of television	2.00	0	2.00	0	2.00	0		
hours watched yesterday	1.48	2.47	1.41	1.26	0.84	0.92	1.30	.28
hours watched last weekend	3.57	3.30	3.55	2.96	2.16	1.30	2.85	.06

<sup>a</sup> Hours worked per week are based on the coding of 1 = 10 hours per week.  
2 = 15 hours per week.

<sup>b</sup> X multiplied by 1000 equals the mid range of gross family income.

### Employment patterns

Mothers who indicated that they were employed were assigned a value of two and those not employed were assigned a value of one. A oneway analysis of variance was performed which yielded an  $F = 2.32$ ,  $p < .11$ . Upon analyzing three other variables closely related to employment status significant differences were found. It was found that the control group reported working a greater number of hours each week than did either the treatment or the transfer materials groups ( $F = 4.69$ ,  $p < .01$ ). The control group worked an average of 1.77 days per week as compared to 1.09 days per week for the treatment group and 0.53 days per week for the transfer materials group ( $F = 3.45$ ,  $p < .04$ ). Travel time to work in minutes was significantly higher for the control group ( $F = 5.67$ ,  $p < .005$ ). The control group reported an average travel time of 17.14 minutes as compared to the treatment group who reported an average of 7.65 and the transfer group an average of 3.06 minutes.

Although the differences were statistically significant, from a workaday point of view they were less significant. The differences when translated into practical figures work into a mean number of hours worked per week of

hours worked per week of 7.4 hours for the treatment group as compared to 15 hours per week for the control group and 5.9 hours per week for the group receiving the transfer materials. Similarly, the significance of the differences in travel time to work in minutes is not as great as  $F = 5.67$ ,  $p < .005$  suggests. Thus, based on the fact that the centres were randomly assigned to the three experimental conditions coupled with the de-emphasis of the observed differences when viewed from the perspective of application to daily life, the three groups were considered to be equivalent with respect to employment patterns.

### Gross family income

Although a number of respondents chose not to respond to the question related to gross family income, the oneway analysis of variance performed on this question did not reveal any significant differences between the groups. A summary of the income data showed that a total of 63 (82 percent) mothers answered this question. Reported income ranged from less than \$10,000 annually to in excess of \$60,000 annually with a mean of \$26,521 for the treatment group, \$28,864 for the control group and \$30,156 for those receiving transfer materials (Table 7). The mean income for the treatment group may be artificially low due to the number of abstentions regarding this question. Sixty-nine percent of the treatment group answered this question as compared to 95.5 percent of the control group and 81 percent of the transfer materials group.

### Family size

Most respondents did not have large families. The mean family size for the treatment group was 4.17, control group 4.23 and for the transfer materials group 4.34 (Table 7). An analysis of variance did not identify any significant differences. Also shown in Table 7 is the mean age of the

preschool child who served as the potential change agent in this study. No significant differences ( $F = 1.49$ , n.s.) were found among the mean ages of 50.61 months for the treatment group, 56.14 months for the control group and 54.63 months for the transfer materials group. The distribution of respondents by age is shown in Table 8.

Table 8  
Distribution of Family Members by Age Categories

Age of Family Members	Treatment		Control		Transfer Materials	
	n = 23		n = 22		n = 32	
	number	per cent	number	per cent	number	per cent
under 2 years	4	17.4	6	27.3	8	25.0
2 - 4 years	23	100	22	100	32	100
kindergarten	3	13	3	13.6	4	12.5
elementary school age	8	34.8	11	50.0	16	50.0
high school age	1	4.3	0	0.0	1	3.1
out of school but at home	0	0.0	0	0.0	0	0.0
spouse	22	95.7	20	90.9	32	100
grandparents & other relatives	2	8.7	2	9.1	0	0.0
boarders	0	0.0	2	9.1	0	0.0

<sup>a</sup> totals to more than 100 percent due to multiple responses.



### Influence of family members on food purchases

Family members were not found to have a significant impact on the respondent's food purchases with the exception of the spouse. Upon examining the degree of influence which the respondents indicated each family member had on food purchase patterns, a significant difference was found with respect to the degree of influence exerted by the spouse ( $p < .04$ ). Based on a rating scale of one through six where a value of one corresponded to no influence on food purchase patterns and six corresponded to very much influence, the following means were obtained for degree of influence held by the spouse: treatment group  $\bar{X} = 3.30$ , control group  $\bar{X} = 3.82$  and transfer materials group  $\bar{X} = 4.31$ . As shown in Table 7 the analysis of variance of the family influence of the spouse resulted in a significant F value ( $p < .04$ ). Using Scheffe at .10 the transfer materials group was found to be significantly different from the treatment group with the transfer materials group reporting a higher degree of influence of the spouse. Since the transfer materials group was significantly different from the treatment group a further analysis was performed to determine if any spousal influence differences existed between respondents of the two centres making up the transfer materials group. No significant differences were found between the respondents from the two centres making up this group ( $F = 1.12$ , n.s.).

### Television time

The presence of television and television viewing times were compared for the three groups. As seen in Table 7 all respondents reported having a television set. Viewing time in hours was not found to be significantly different amongst the groups for the previous day, or for the hours watched by the preschooler last weekend.

Random assignment coupled with the analysis of the demographic variables as presented indicated that the three experimental groups appeared to be reasonably homogeneous.

### Distribution of transfer materials

Since the distribution of transfer materials (pamphlets, booklets) was an integral part of the study an analysis was carried out to determine to what extent they were received or not received by the respondents. Those respondents who said they did receive the publication were assigned a value of two, those who did not receive the publication were given a value of one. In this way all replies were summed over and divided by the number of respondents in each treatment condition. This resulted in means of 1.83 (treatment group), 1.18 (control group) and 1.81 (transfer materials group) for the publication the "Breakfast Book". Translated further these means indicate

the percent of respondents confirming their receipt of a given transfer material. For example, had all respondents in the treatment group reported receiving the "Breakfast Book" the mean value would have been equal to two, had all those in the control group reported not receiving it, the mean value would have been one. Neither extreme was reported, but rather 83 percent ( $\bar{X} = 1.83$ ) of the treatment group said they received the "Breakfast Book", 18 percent ( $\bar{X} = 1.18$ ) of the control and 81 percent ( $\bar{X} = 1.81$ ) of the transfer materials group. Thus, the control group was, as expected, very different from the other two treatment groups. This was also reflected by  $F = 12.11$ ,  $p < .001$  which indicates that it is highly unlikely that this value would occur by chance. As planned, the appropriate groups received the transfer materials. Table 9 presents these results.

Of the four publications which should have gone out to the treatment group and to the transfer materials group three were distributed with equal frequency. During Week Two, the transfer materials group did not report as high an incidence of receiving "Quick Breakfasts for People on the Go".

Upon further investigation as to the possible explanation for this difference, it was found that one of

the regular nursery school teachers was absent on that particular day. Otherwise, those intended to receive the transfer materials reported doing so. The percent of respondents saying they had received materials was not 100 percent, but some of the discrepancy can also be explained by the car pooling for rides which occurred at many nursery schools. Reports were received that on occasion a child had left the materials in a friend's car. The significant results obtained when analyzing this question were in accordance with what was expected.

Table 9

Mean Number and Percent of Parents in Treatment, Control and Transfer Materials Groups Who Reported Receiving Transfer Materials

Transfer Materials	Treatment n = 23			Control n = 22			Transfer Materials n = 32			F-ratio	F-prob.
	$\bar{X}$	S.D.	per cent	$\bar{X}$	S.D.	per cent	$\bar{X}$	S.D.	per cent		
"The Breakfast Book"	1.83	0.39	83	1.18	0.59	27	1.81	0.54	81	12.11	.001*
"Quick Breakfasts for People on the Go"	1.61	0.50	61	0.95	0.38	4.5	1.16	0.52	16	11.42	.001*
"Sugar Content of Breakfast Cereals"	1.78	0.42	78	0.95	0.38	4.5	1.75	0.57	75	22.60	.001*
"Handy Nutrition"	1.61	0.50	61	0.91	0.29	0	1.56	0.62	56	13.78	.001*
Other Publications	1.04	0.21	4	0.91	0.29	0	1.13	0.49	13	2.19	.12
Did Not Receive Any Publications	1.00	0	0	1.55	0.67	64	0.91	0.30	3	17.55	.001*

<sup>a</sup>In the control group there were two non-respondents to this question. Percent of respondents receiving transfer materials have been adjusted to reflect this.

### **Food Purchase Patterns Reported by the Respondents**

All respondents to the questionnaire were mothers, thus the food purchase patterns to be described are those patterns of the mother as influenced by the other family members as identified in Table 7.

The first hypothesis stated: There is no significant difference among the parents of the three experimental groups regarding the frequency of purchase of milk products, whole grain breads and cereals, cereals with more than fifteen percent added sugar, high quality protein sources and fruits and fruit juices. This hypothesis was evaluated by examining those food purchases which parents reported making over the last month. Individual parent scores were summed over and a mean food purchase score calculated for each of the treatment, transfer materials and control groups. These food purchase scores were then analyzed using the analysis of variance procedure (Table 10). The food purchase scores for the categories milk products, whole grain products, high quality protein sources and fruits and fruit juices were not found to be significantly different for the three groups.

Table 10

Mean Food Purchase Scores for Each of the Treatment, Control and  
Transfer Materials Groups

Food Group	Number of foods in group	Treatment n = 23		Control n = 22		Transfer Materials n = 32		F-ratio	F-prob.
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Milk Products	7	2.04	1.11	2.36	1.09	2.31	0.86	0.69	.51
Whole Grain Breads/Cereals	8	3.35	1.37	2.91	1.72	3.44	1.34	0.91	.41
Cereals with Greater than 15% sugar	22	0.69	0.93	1.91	1.63	1.03	1.09	5.90	.004*
High Quality Protein	6	5.22	0.85	5.05	1.09	5.25	0.80	0.36	.70
Fruits and Fruit Juices	16	5.35	2.10	4.68	1.70	5.56	1.85	1.47	.24

A significant difference was observed with respect to food purchase patterns relating to breakfast cereals containing in excess of fifteen percent sugar. Using the Scheffe procedure (.10) the control group was found to be significantly different from both the treatment and the transfer materials group.

To test the possibility that food purchase pattern scores remained constant for the food groups specified in the hypothesis, but may have changed for their respective competing groups namely, modified milk products, other baked products, cereals with less than fifteen percent added sugar, low quality protein sources, and other beverages an analysis of variance was performed on these scores. No significant differences were found among the food groups which could have entered in as possible competitors to those cited in Table 10 (Table 11).

Table 11

Mean Competing Food Purchase Scores for Each of the Treatment,  
Control and Transfer Materials Groups

Competing Food Group	Number of foods in group	Treatment n = 23		Control n = 22		Transfer Materials n = 32		F-ratio	F-prob.
		$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.		
Modified Milk Products	8	1.26	1.18	1.73	1.28	1.22	1.36	1.15	.32
Other Baked Products	16	2.91	1.53	3.55	2.20	3.47	2.00	0.75	.48
Cereals with Less than 15% Sugar	26	6.87	3.00	6.45	2.61	6.91	2.54	0.21	.81
Low Quality Proteins	4	2.96	0.82	3.14	0.89	2.87	1.04	0.51	.60
Other Beverages	14	3.57	1.50	3.77	1.93	3.63	1.47	0.10	.91

Thus, after examining the five categories of foods identified in the hypothesis, four yielded non-significant differences. It appeared that the program only had an impact on the purchase of cereals with added sugar in excess of fifteen percent. Due to the fact that five univariate analyses were conducted the experiment wise error rate was increased, thereby increasing the possibility that the observed difference in sweetened cereal scores was due to chance alone.

However, in spite of the possibility that the significant result was due to chance, there is reason to believe that the significant difference observed would be more likely to occur as a result of the treatment conditions imposed. Adult behaviors are often difficult to modify; consequently it was not anticipated that significant differences would have been obtained for all food categories. The fact that a significant result was found with foods containing added sugar was consistent with the findings of Gates and Campbell (1981) who reported that Canadian parents were most likely to alter sugar consumption as one of the first modifications to the family's diet. The idea that the significant result obtained was purely an artifact can also be discounted when one considers the vast number of dollars spent on cereal advertisements directed



toward children. The possibility exists that although the breakfast program itself did not have an impact on all behaviors cited in the hypothesis, it did exert an influence on the type of cereal purchases made. This may be partially due to the awareness which many parents already have about the detrimental effects of a diet high in sugar. The population is already very conscious of sugar and its affect on the body, therefore, it is easier to change this parental behavior with stimulation from the child than it is to change the other behaviors. Another factor which suggests that the significant result obtained was not due to chance alone is the degree of consistency observed between parents and children in their responses to the consumption of cereals (Table 2). Children and parents were in agreement on the fact that cereals were included in breakfasts eaten. Eighty-seven percent of the time children and parents agreed that cereals were eaten suggesting that the cereals category is the one most commonly discussed, and the one which the child readily expresses an opinion on. If this assumption is accepted then it would follow that cereals would be the first category to reflect a change in parental purchase patterns due to stimulation from the child.

The finding that both the treatment and transfer materials group chose significantly fewer high sugar cereals than did the control group can be approached from three points of view. Firstly, it is possible to consider the child as an effective change agent in both cases. In the case of the treatment group, the child returned home not only with the transfer materials in question, but also with added information and possibly with increased enthusiasm due to the breakfast program presented. Meanwhile in the transfer materials group, the child returned home with pamphlets only. Because it was the child who was delivering the information, the parent(s) paid attention to what it was that was being brought home. Thus, it can be argued that the child was acting as a stimulator of change in both cases. A future study examining the impact of transfer materials sent to the parents via the mail service would provide further clarification of the child's role in acting as a change agent.

Secondly, the impact of the transfer materials alone is consistent with other studies citing sources of nutrition information used most frequently by parents and the public. Eppright et al. (1969) reported that mothers relied heavily on printed materials for their nutrition information while Schwartz and Barr (1977) reported that Vancouver mothers of

young children utilized printed sources of nutrition information. Sullivan and Schwartz (1981) reported that 88.3 percent of Canadian adults used printed materials as their primary source of nutrition information. In this study which involved 281 British Columbia adults - of whom 57.7 percent were between the ages of nineteen and thirty-five, the most frequently cited sources of information about nutrition and cardiovascular disease were magazines, books, newspapers, television, friends, the physician and the family.

Finally, as suggested by the earlier analysis of the demographic variables relating to the degree of influence of family members and the importance of the family in the study of Sullivan and Schwartz (1981) it became apparent that spousal influence may have exerted an impact on the food purchase patterns of the mother.

For the transfer materials group the family influence of the spouse on food purchase patterns was found to be significantly different from the treatment group. This influence may have contributed to the decreased sweetened cereal score observed for the transfer materials group (Table 7).

Thus, it was decided to run a multiple regression analysis. The aim of this analysis was to determine whether those variables associated with the significant differences observed in the oneway analysis of variance of the demographic variables predicted sweetened cereal scores. The dependent variable, sweetened cereal score, was run against the independent variables of experimental condition, employment status, hours worked, days worked, travel time in minutes, income, family size and the family influence of each of its various members. The independent variable, experimental condition, was ordered in a hierarchial manner such that one denoted those respondents in the control group, two represented those in the transfer materials group, and three those of the treatment group. The independent variables eligible for entry into the equation were those for which significant differences were found (Table 7): hours worked, days worked, travel and the family influence of the spouse. It also included experimental condition on the a priori grounds that it was believed to have an affect on the dependent variable sweetened cereal score. Income, family size and the influence of other family members were included because each was considered a subset of the variables yielding significant differences in Table 7.

Using the stepwise multiple regression procedure, four independent variables were identified as influencing sweetened cereal scores. As shown in Table 12, family size, travel time to work and the influence of the elementary age child were variables competing with the centre in determining sweetened cereal score. From the results obtained it appears that the large family is more likely to have a higher sweetened cereal score than the small family, and the family where the mother's travel time to work is greatest is most likely to select cereals with added sugar. Influence exerted by the elementary age child on food purchases is negatively correlated suggesting that this child may be influential in decreasing the mother's purchase of cereals containing added sugar. This is possibly a result of the nutrition education programs for children which have been offered in the early elementary grades, especially kindergarten and grade one. As expected, centre was also negatively correlated indicating that as one moved from the control group to the transfer materials group to the breakfast program group there was a decrease in sweetened cereal scores. Table 12 shows that family size is the independent variable of greatest relative importance in predicting sweetened cereal score. It is followed by centre.

The variables in the regression equation represent only a portion of the many factors influencing the sweetened cereal purchase patterns of the mother. The four variables singled out in the stepwise multiple regression procedure explain approximately one-third of the variation of sweetened cereal scores.

Table 12  
Predictors of Sweetened Cereal Score

Variable	Multiple r	Beta (final)	F-ratio (at entry)
Centre	.33	-.28	9.41
Family size	.41	.33	7.70
Travel time to work	.48	.26	7.37
Influence of the elementary age child on food purchases	.54	-.26	7.60

The family influence of the spouse which was considered as a possible explanation for the low sweetened cereal purchase score in the transfer group did not appear as one of the variables in the stepwise regression explaining the behavior of the dependent variable. Thus, the groups were considered equivalent with respect to this variable. All but one of the other demographic variables which were

significant in the oneway analysis of variance failed to be identified as a potential predictor of the sweetened cereal purchase score. Again this points to the homogeneity of the groups. Even though travel in minutes showed up as a variable in the regression equation, as discussed previously, the true impact of the difference in travel time remains debatable. Family size and the family influence of the elementary age child were identified by the stepwise regression, but were not identified as significantly different variables in the analysis of variance. Thus, based upon the analysis of variance and the stepwise regression, the three experimental groups studied were considered to have come from the same population.

From the analysis of the study's results, the null hypothesis stating that no differences exist among the treatment, control and transfer materials groups with respect to the frequency of purchase of milk products, whole grain breads and cereals, high quality protein sources and fruits and fruit juices was accepted. The null hypothesis regarding the frequency of purchase of cereals with greater than fifteen percent added sugar was rejected at  $p < .05$ . Significant differences were found between the control group and the treatment group, and between the control group and the transfer materials group when Scheffe (.10) was used.

The overall program did not work, but one significant result was found which prompted further investigation of the question: were the differences in sweetened cereal scores a result of the impact of the treatment or a Type I error? The stepwise multiple regression carried out demonstrated that the treatment (centre) was not an artifact, but rather that it was an independent variable which did have strength in predicting sweetened cereal score.

#### **Types of Breakfasts Offered by the Respondents**

The second hypothesis to be tested stated that there would not be a significant difference among the parents of the three experimental groups regarding the frequency of offering: a) breakfasts to their children, b) a nutritious beverage, c) a high quality protein source, d) a whole grain bread or cereal choice and e) a cereal containing in excess of fifteen percent sugar at breakfast. Data pertaining to foods offered at breakfast were obtained from parents using a checklist of potential breakfast foods. Responses were coded into the above categories on a yes/no basis and an analysis of variance conducted. All parents in the treatment group reported offering their children breakfast along with 95 percent of parents in the control group and 97



percent of those in the transfer materials group (Table 13). No significant differences were found at the .05 level of significance with respect to specific foods offered to the children at breakfast.

Table 13

Breakfast Foods Offered to Children in the Treatment, Control  
and Transfer Materials Groups

Foods Offered	Treatment n = 23			Control n = 22			Transfer Materials n = 32			F-ratio	F-prob.
	$\bar{X}$	S.D.	Per Cent	$\bar{X}$	S.D.	Per Cent	$\bar{X}$	S.D.	Per Cent		
Breakfast Offered	2.00	0	100	1.95	0.21	95	1.97	0.18	97	0.48	.62
Nutritious Beverage	2.00	0	100	1.77	0.61	77	1.88	0.34	88	1.90	.16
High Quality Protein	1.43	0.51	43	1.27	0.63	27	1.56	0.50	56	1.85	.16
Whole Grain Bread/Cereal	1.61	0.50	61	1.36	0.66	36	1.66	0.48	66	2.04	.14
Cereal with Greater than 15% Sugar	1.09	0.29	9	1.23	0.43	23	1.09	0.30	9	1.29	.28

## CHAPTER V

### SUMMARY AND CONCLUSIONS

An initial return rate of 92 parent questionnaires which represented 89 percent of the total sample was obtained. Of these 77 questionnaires (75 percent) were included in the final analysis to determine the influence which the preschool child had on parental food purchase behaviors relating to breakfast food selections. Data on selected demographic variables was also analyzed to determine the homogeneity of the three experimental groups involved in the study. The three experimental groups included in the study, which was a post-test only design, included a control group, a transfer materials group who received nutrition pamphlets only and a treatment group whose children participated in a four week breakfast program and who also received those pamphlets given to the transfer materials group. From the analyses carried out it was determined that the respondents were from the same population, and that the impact of treatment was significant with respect to the purchase of cereals containing in excess of fifteen percent sugar.

Of the five categories of foods investigated in the hypothesis related to parental purchase patterns of breakfast foods, four did not yield significant differences.

No change was observed in the frequency of purchase of milk products used as a beverage, whole grain bread and cereal selections, high quality protein sources or fruits and fruit juices. The number of sweetened cereal purchases was found to be significantly different for an  $F = 5.90$ ,  $p < .004$ . Through further analysis using the Scheffe (.10) and Tukey procedures the control group was found to differ significantly from both the transfer materials and the treatment groups. Those parents who received nothing but the questionnaire reported choosing a greater number of cereals containing in excess of fifteen percent sugar than did those parents who received the questionnaire plus nutrition pamphlets, and in the case of the treatment group, the breakfast program plus nutrition pamphlets.

The finding that both the transfer materials group and the treatment group were significantly different from the control group prompted further investigation. As a result, those demographic variables which may have exerted an influence were re-examined using the stepwise multiple regression technique. The only demographic variable which was identified by this technique, and which had also been identified in the oneway analysis of variance, was travel time. However, because the differences in travel time to work were only a matter of approximately ten minutes this variable was discounted as a major difference amongst the groups. Another explanation for the observed difference

could be that the child was in fact acting as a change agent in both situations: the transfer materials group and the treatment group. In these two groups the child was arriving home with information about breakfast choices and was capable of exerting an influence on the parents' selection of food as evidenced by the lower sweetened cereal scores for these parents. The contention is that the child functioned as a change agent and played a role in parent decision making in both instances. Although this study did not incorporate a pamphlets only group, totally devoid of the child's intervention, it would be a factor to consider in future investigations. Another study which included a fourth group who received pamphlets via the postal service would allow for greater delineation of the child's influence.

This study suggests that in areas where there has already been extensive public education directed toward adults (e.g. the detriments of a diet high in sugar) the child can act as a catalyst capable of stimulating a behavior change.

Sweetened cereal score was the only dependent variable to be significantly different among the treatment, transfer materials and control groups ( $p < .004$ ). This is largely due to the nature of food habits themselves. For the most

part food habits are "deeply imbedded into cultural norms and tend to resist any but moderate modifications" (Hochbaum, 1981, p. 60). Although a four week program, occurring twice a week, is deemed to be an intense program by the standards of many health professionals; deeply engrained lifestyle patterns actually change over a much longer period of time. Thus, to expect an impact of the breakfast program on all aspects of food selections would be unrealistic.

The time period during which the child was employed as a change agent was too short to see differences in each of the food categories identified or to observe significant differences in the breakfast food selections offered to the child by the parent. Although the types of breakfast foods offered were not found to be significantly different at the five percent level of significance there was evidence of a trend. It was found that the control group was slightly less inclined to offer nutritious beverages, high quality protein sources, and whole grain breads and/or cereals than the two "treatment" groups. The scores for the frequency of offering a cereal containing in excess of fifteen percent sugar were found to be higher for the control group than for the transfer materials and treatment groups. This is in accordance with the finding that the control group was significantly different from the other two groups in the

sweetened cereal purchase score. The control group not only purchased a significantly greater number of cereals with more than fifteen percent sugar, they also offered these cereals to their children more often.

Parents rely on a combination of sources for nutrition information and the child is one of these sources. However, the child is acting as a change agent in a competing environment which includes the adult's preconceived perceptions of food, the mass media and the potential influence of other family members coupled with the parent's response to these influences. The child is an indirect channel of communication and the relevance of this finding should be considered with respect to nutrition education programs in particular, and to health programs in general. In order for the child to function effectively as a change agent capable of generating long term parental behavior change care must be taken to ensure that the process is planned, and that it allows for a continuing relationship over a period of time.

#### **Why the Program Did not Work**

The following discussion speculates about some of the reasons why the program was not as effective as desired. The comments presented are partly based on the research findings and casual observations made during the course of the study.

This particular study did not reveal differences either because (a) the breakfast program worked, but the measuring instruments were too insensitive to detect differences or (b) the breakfast program did not work due to factors beyond the control of the researcher, but the measuring instruments were accurate.

### Program worked

Assuming the stance taken in (a) it is possible to argue that the food groups yielding non significant differences (milk products, whole grain breads and cereals, fruits and fruit juices and high quality protein sources) represented food categories for which parents were already making acceptable selections. The parent questionnaire as it was designed was not capable of identifying fine tuned alterations in food purchase behavior e.g. the selection of two percent milk as opposed to whole milk. Rather, the fact that either counted toward the food purchase score for that particular group illustrates the degree of insensitivity of the measuring instrument.

Another possibility is the fact that the food groups were not weighted according to the extent of advertising which they received. Clearly, breakfast cereals are advertised most often, and a large proportion of the advertising is directed toward children. It follows that it

is quite likely that this is one food category to which both parents and children are already tuned in. Messages concerning cereals are received from a different perspective than for less advertised products such as whole grain breads, fruits, etc. Again, the questionnaire was not developed with any intention of weighting changes in food purchase scores according to advertising time or dollars invested in a specific food group. However, that is not to say that it should not be given future consideration.

#### Program did not work

Adopting explanation (b) that the program did not work, it is important to identify factors which prevented the desired outcome from occurring. In retrospect, time is the most crucial factor to consider here. Time should be viewed from two standpoints in terms of the actual hours devoted to the breakfast education program, and terms of the time of year during which the program was introduced. As mentioned earlier, behavior patterns surrounding food choices are difficult to alter because of the many connotations each particular food choice holds for the individual. In order to modify these behaviors it is necessary to extend the program over a longer time span than four weeks. At the outset of the study four weeks, twice weekly was considered to be more intense than many programs, but the results



appear to indicate that this length of time was only beginning to stimulate behavior change. The options of daily programming over a specified time span (e.g. four weeks), weekly programming over an entire year and any time in between are the other possibilities which could be investigated to find that point at which parental behavior change results from the education experiences provided to the child. The timespan chosen for this study appears to have been too short.

In addition to the length of time, this program did not yield the anticipated results possibly on account of the time of the year during which it was conducted. Offering a breakfast program at the end of the school year may not be the most appropriate time despite the fact that it was the only time available for this study. The concept of capturing the teachable moment is an important consideration.

### Implications for future research

Although this research study failed to clearly identify the child as a change agent capable of altering parental behavior patterns it did unveil areas for future investigation. The child as a change agent is still a potential phenomenon of the '80s, the power of which is presently unknown. For those adults who possess a given body of knowledge, but who have not yet translated it into action (behavior) this study suggests that the child may act as a catalyst for change. The child, however, does not stimulate change on his/her own. Many other variables (e.g. family size, employment conditions, influence of other family members) interact with the child in the change process. Each of these variables as well as the extent of knowledge required by the parent before the child can effectively serve as a catalyst are topics deserving of investigation. In so doing the magnitude of the child's influence might be quantified.

This study could be replicated by examining only the sweetened cereal purchase patterns of adults. In so doing, it should be possible to evaluate the impact of the child on the parent in an area where the parent is faced with selecting among a large number of products. This was not true of some of the other food groups considered in the

present study (i.e. milk products, high quality protein sources). Another approach would be to focus on lunch where people choose from among a greater array of foods than those normally served at breakfast. By expanding the possibility for decision-making, the child's impact on the parent may surface more decisively.

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If your nursery school is interested in participating in this project, please complete the attached form and return in the envelope provided. All returns are requested by April 2, 1982.

I look forward to working with you again.

Yours truly,

Dorothy Fisher,  
Community Nutritionist.

DF:gs  
Encl.



### THE BREAKFAST PROGRAM

OVERALL GOAL: Through the provision of nutrition education activities for the preschool child the breakfast program is designed to increase the family's awareness of the importance of a nutritious breakfast.

OBJECTIVES: Each preschool child will actively participate in:

1. Recording his/her breakfast patterns. (The Weekly Breakfast Check).
2. Collecting and assembling a graphic representation of breakfast foods. (Piecing together the Breakfast Puzzle).
3. A discussion which focuses on the importance of each of the food groups at breakfast.
4. Food preparation activities which emphasize breakfast foods.
5. Communicating information about the breakfast program to other family members.

### GENERAL PROGRAM INFORMATION:

- \*\* Children should continue to eat their regular breakfast at home.
- \*\* Food preparation activities will replace the snack usually sent from home - children should be reminded not to bring a snack on days when the group will be cooking.
- \*\* It is intended that the breakfast program be carried out twice/week. The first session each week allowing for organizational time and time to acquaint the children with the upcoming activities. The second session is devoted to food preparation activities.
- \*\* Keep receipts for all expenses - you will be reimbursed.

## WEEK I

MILK AND MILK PRODUCTS

- Session One:
1. Introducing the program:
    - a) use the "Perky and Patty" puppet skit - page 9, "Kidbits"
    - b) Make "B" badges for the children to wear home. *(I'm in the Breakfast Program)*
    - c) Introduce the "Weekly Breakfast Check" (description attached)
  2. Introduce the Milk Group:
    - a) Teach children the Milk Cheer - page 28, Kidbits.
    - b) Ask children to hunt for pictures of milk and milk products for their puzzle collage (Reminder forms are attached along with a description of the activity).
    - c) Ask children to bring a jar for the Breakfast Shake to be made next session.

- Session Two:
1. Do the "Weekly Breakfast Check"
  2. Discuss pictures brought, create the puzzle collage, post.
  3. Make Breakfast Shakes - page 13, Kidbits.
  4. Send one copy of the Breakfast Book home with each child.

## WEEK II

BREADS AND CEREALSSession One:

1. Have a review discussion of the "Weekly Breakfast Check" noting that this week Breads and Cereals will be the focus.
2. Introduce the Breads and Cereals group with the story, "The Little Red Hen". Emphasize the importance of whole grains.
3. Remind children to bring pictures, labels, etc. of breakfast foods from the Breads and Cereals group to the next session.
4. Plan a trip to the store to purchase items needed for Session Two. Also, include a discussion of the breakfast cereals available.

Session Two:

1. Do the "Weekly Breakfast Check".
2. Discuss pictures brought, create the puzzle collage, add to the piece posted last week. Again re-emphasize the use of whole grain choices and discuss the implications of sugared cereals.
3. Make whole wheat pancakes - page 16, "Kidbits". (Alternatives could include: whole grain muffins, page 15; granola, page 17; or bread sculptures, page 18.) Review the value of milk with this activity.
4. Collect "quotable quotes" from the children during each activity. These will be combined into a parent newsletter for Week V. Involve children in doing artwork for a cover page and an author page.
5. Send one copy of "The Sugar Content of Breakfast Cereals" and "Quick Breakfasts for People on the Go" home with each child. The list of sugar content and breakfast cereals could be posted inside the kitchen cupboard door. Consider sending this suggestion home with the child.

## WEEK III

PROTEINSSession One:

1. Have a review discussion of the "Weekly Breakfast Check" noting that this week foods which contain Protein will be the focus.
2. Introduce the Protein group to the children giving examples of foods fitting into this category. Remind children to bring pictures for Puzzle Piece Number 3.

Session Two:

1. Do the "Weekly Breakfast Check".
2. Discuss pictures brought, create the puzzle collage, add to the other two puzzle pieces posted.
3. Make one of:
  - a) peanut butter - page 22, "Kidbits" (combine with the peanut elf activity - page 29) or
  - b) scrambled eggs with cheese melted on top.
4. Relate this session's food activity to the previous activities, reviewing the importance of each food group to breakfast.
5. Send one copy of "Handy Nutrition" home with each child.

## WEEK IV

FRUITS

- Section One:
1. Have a review discussion of the "Weekly Breakfast Check" noting the Fruits which are appropriate breakfast choices.
  2. Introduce the Fruits through the mystery bag reach which is a modification of the Vegetable Bag Reach - page 18, "Kidbits". Instead of a vegetable in the bag, use a fruit which might be eaten at breakfast.
  3. Remind children to bring fruit pictures for the last piece of "The Breakfast Puzzle".
- Section Two:
1. Do the "Weekly Breakfast Check" and discuss as a group. After discussing the group's breakfast patterns, cut apart each child's individual record and have each child make a personal record for home use. This could be posted on the fridge door at home.
  2. Discuss fruit pictures brought and create the last piece of the puzzle collage. Post and discuss how each of the groups fit together to make a selection of nutritious breakfast choices.
  3. Make one of:
    - a) a breakfast juice from fruits, e.g., oranges, grapefruit, melons, etc.
    - b) a friendship fruit salad - page 68, "Kidbits"
    - c) fruit muffins if muffins were not made in Week II e.g., blueberry muffins.
  4. Finalize the "quotable quotes" and "artwork" for the parent newsletter.
  5. Send one copy of the Breakfast Program Questionnaire home with each child. Remind each child to return it on the next school day.

## WEEK V

PROGRAM EVALUATIONSession One and Two:

1. On both days, complete the "What I Had For Breakfast Today" food record for each child individually. (Forms to be provided). This should not be done as a group activity.
2. Collect the "What I Had for Breakfast Today" forms which have been completed by the parents and returned by the child. (Note: parents will have received these forms as part of the questionnair package distributed after the last session of the program.)
3. Collect parent questionnaires.
4. Have program receipts collected for reimbursement.
5. Distribute the parent newsletter.
6. A big thank you to each and every one of you who participated.

## CONTINUING PROGRAM ACTIVITIES

### A. "THE WEEKLY BREAKFAST CHECK"

Once a week each child will have the opportunity of charting his/her breakfast patterns. This will be carried out as a group activity with accompanying discussion for each of Weeks I - IV inclusive. At the conclusion of Week IV, each child will receive his/her own portion of the chart from which a personalized record can be made and taken home to put on the fridge door. An example of what the chart should look like appears below.

#### EXAMPLE:

#### DISCOVERY HOUSE'S BREAKFAST CHECK

Child's name		Yes, I had breakfast!				Yes, I had some		
		Week:	1	2	3	4	Milk	Bread/Cereal etc.
Robyn			*					

Each week, add a column for the new food group being discussed.

Child's Personalized Record might look like this:

#### ROBYN'S BREAKFAST CHECK

	Week:	1	2	3	4	5	6	Yes, I had some		
								Milk,	B & C	Protein
Yes, I had breakfast:		*	*	*	*					

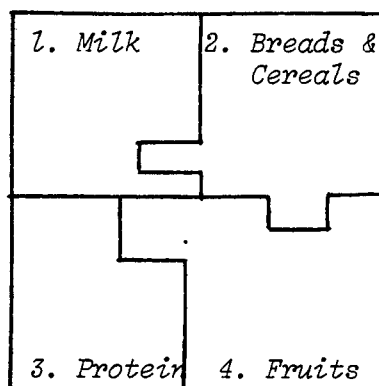
Note: Leave a few blank spaces so that the chart can be continued at home.

## B. "THE BREAKFAST PUZZLE"

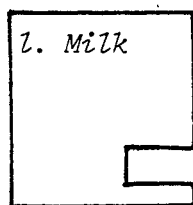
Each week have children bring pictures, labels, empty cartons, etc. of the Breakfast Group of the Week (e.g., a cheese label, picture of an apple, etc.). Using poster paper which has been pre-cut into four puzzle pieces each labelled for one of the food groups; make a collage out of the pictures brought by the children for that particular food group. Once the picture puzzle piece is complete post it on the wall and add a new piece for each of the four weeks. Discuss each group and its relationship with breakfast as children bring their contributions for this collage.

### EXAMPLE:

1. Pre-cut poster into four puzzle pieces



2. Make a collage for each piece and post. Add successive pieces.





## THE PRESCHOOL BREAKFAST PROGRAM PARENT QUESTIONNAIRE

1. It is intended that this questionnaire be completed by mothers of children attending preschool.

Are you the child's mother? Yes ☐

No ☐

If no, please specify your relationship to the preschooler. (e.g. father, aunt, etc.) \_\_\_\_\_

2. Which of the following describes your area of residence? (Check)

Coquitlam ☐ Port Moody ☐

Port Coquitlam ☐ Other ☐ Specify location \_\_\_\_\_

3. Are you currently employed? No ☐

Yes ☐

How many hours per week do you work?

(Circle)

10 15 20 25 30 35 40 45 50

How many days per week do you work?

(Circle)

1 2 3 4 5 6 7

How long does it take you to get to work? (Print)

\_\_\_\_\_ minutes.

4. In the box print the letter which represents your present gross family income. (i.e. your total family income before taxes and deductions.)

Less than \$10,000 annually.

A

\$10,000 — 15,000

B

\$15,001 — 20,000

C

\$20,001 — 25,000

D

\$25,001 — 30,000

E

\$30,000 — 35,000

F

\$35,001 — 40,000

G

\$40,001 — 45,000

H

\$45,001 — 50,000

I

\$50,001 — 55,000

J

\$55,001 — 60,000

K

More than \$60,000 annually

L

Letter

5. How many people including yourself live in your household? \_\_\_\_\_

How many members of your household are in each of the following categories? (Circle)

a) Children

under 2 years None One Two Three Four

2—4 years None One Two Three Four

in kindergarten None One Two Three Four

in elementary school	None	One	Two	Three	Four
in junior/senior high school	None	One	Two	Three	Four
left school or graduated (but at home)	None	One	Two	Three	Four
<b>b) Spouse or Partner</b>	None	One	Two	Three	Four
Grandmother	None	One	Two	Three	Four
Grandfather	None	One	Two	Three	Four
Other Relative	None	One	Two	Three	Four
Boarder	None	One	Two	Three	Four
Nanny or Housekeeper	None	One	Two	Three	Four

6. What is the birthdate of the child you currently have in preschool? \_\_\_\_\_

7. To what degree do each of the people in your house influence the food purchases made? Check (✓) either applicable or not applicable. If applicable, mark the degree of influence on the corresponding scale using an X.

e.g Teenager. Applicable. ☒ \_\_\_\_\_

a) Child under 2 years

Not Applicable, do not have a child under 2 years ☐

Applicable, do have a child under 2 years

Check \_\_\_\_\_  
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence  
 X

b) Child attending preschool

c) Other children 2—4 years but not at preschool.

Not Applicable ☐

Applicable

☐ → \_\_\_\_\_  
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence

d) Elementary School Child

Not Applicable ☐

Applicable

☐ → \_\_\_\_\_  
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence

e) Teenager

Not Applicable ☐

Applicable

☐ → \_\_\_\_\_  
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence

f) Yourself

Other Adults (specify spouse, partner, etc. or enter N/A if not applicable)

1. \_\_\_\_\_ →

\_\_\_\_\_   
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence

2. \_\_\_\_\_ →

\_\_\_\_\_   
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence

3. \_\_\_\_\_ →

\_\_\_\_\_   
 No Influence Very Little Influence Little Influence Moderate Influence Much Influence Very Much Influence

## 8. Does your household have a television set?

No ☐Yes ☐

How many hours of television did your preschooler watch yesterday? (Circle)

0 1 2 3 4 5 6 7 8 9 10 11 12

and last weekend? (Circle)

2 4 6 8 10 12 14 16 18 20 22 24 26

## 9. Check (✓) those nutrition pamphlets which you received over the past month.

"The Breakfast Book" ☐"Quick Breakfast for People on the Go" ☐"Sugar Content of Breakfast Cereals" ☐"Handy Nutrition" ☐

Others

☐ Give title(s) \_\_\_\_\_Check (✓) if you did not receive any of the above publications ☐

## 10. WHAT FOODS....

Did you buy in the LAST MONTH?

(Note: they may still be in your household or may be all used up.)

Are in your household TODAY?

(Please take time to look.)

	Did you buy Any? (Check)		Is there any? (Check)	
Milk:				
chocolate	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
evaporated, condensed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
whole, homogenized	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
2%	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
skim	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Butter milk	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Eggnog, canned or	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
eggnog flavorbeads				
Milk Mate	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Instant Breakfast	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Hot Chocolate Mix	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Brown Cow Chocolate Syrup	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Postum	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ovaltine	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Tea/Coffee	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Iced Tea	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Lemonade/Limeade	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Apricot Nectar	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Applecot/Orangecot nectar	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Applelime	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ribena	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Grape Juice	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Grape Drink	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cranapple	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cranberry Cocktail	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pineapple Juice	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
C Plus	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Canned, sweetened juices	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Canned, unsweetened juice	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Froot Loops	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Honey Nut Cornflakes	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cheerios	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Honey Nut Cheerios	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Count Chocula	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Boo Berry	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Franken Berry	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Life	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Trix	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Total	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Red River/Sunnyboy	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ready-to-Serve Oatmeal	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Quick Quaker Oats	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Creamy Wheat	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Zoom	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Vita-B	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Stone Buhr 7 grain cereal	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Cinnamon Rolls	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Crumpets	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Danish Pastry	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ding Dongs	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Doughnuts	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
English Muffin	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pancakes/Waffles from a mix	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Eggo Frozen Waffles-bran	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Eggo Frozen Waffles - others	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Aunt Jemina Frozen Waffles	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Snacking' Cake	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Muffins from mix (bran or fruit)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Frosted Pop Tarts	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Plain Pop Tarts	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Digestive Biscuits/ Graham Wafers	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Granola-type snack bars	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Melba Toast/ Wholewheat Crackers	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Twinkies	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Pizza	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Macaroni & Cheese	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Rice Pudding/ Tapioca Pudding-bought	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Rice Pudding/Tapioca Pudding - Homemade	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Scones	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Fruits: fresh (banana, apple, grapefruit, etc.)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
dried (dates, figs, prunes, raisins)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Canned (e.g. pineapple, etc.)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Fried Potatoes	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Ham	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Luncheon meats	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Bacon	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Weiners	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Peanut butter	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Eggs	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Nuts	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Cheese: cheddar	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
cottage	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
processed (e.g. Ingersoll Cheez Whiz)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
cheese slices	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yogurt: plain	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Yogurt: fruit flavored	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Butter	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Margarine	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Sugar	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Honey	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Sugar Substitute	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Fudgsicle/Revel	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Popsicle	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Chocolate Bars	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>

Thank you for taking time to complete this questionnaire.

SECTION TWO: Complete for each day your child attends preschool during the week of May 24-28th. Have your child bring it to preschool on each of these days.

FOODS OFFERED TO AND EATEN BY PRESCHOOLERS

1. Date: \_\_\_\_\_
2. Did you offer breakfast to your preschool child this morning? Yes ☐  
No ☐
3. Please mark with a CHECK ( / ) those foods offered to your preschooler this morning (include those foods offered verbally or actually prepared for the child). STAR ( \* ) those foods which your youngster actually ate. The list includes a variety of foods, but if your child ate something not on the list, please include it in the section "Others".

FOODS	<sup>" / "</sup> if offered	<sup>" * "</sup> if eaten
Whole milk . . . . .	( )	( )
2% milk . . . . .	( )	( )
Skim milk . . . . .	( )	( )
Chocolate milk . . . . .	( )	( )
Ovaltine . . . . .	( )	( )
Unsweetened fruit juice . . . . .	( )	( )
Sweetened fruit juice . . . . .	( )	( )
Drink made from crystals . . . . .	( )	( )
Tea/coffee . . . . .	( )	( )
Other milk drinks, e.g. eggnog . . . . .	( )	( )
White bread/toast . . . . .	( )	( )
Wholewheat bread/toast . . . . .	( )	( )
Raisin bread/toast . . . . .	( )	( )
Cold unsweetened cereal . . . . .	( )	( )
Name _____		
Cold, sweetened cereal . . . . .	( )	( )
Name _____		
Hot cereal . . . . .	( )	( )
Pancakes, homemade . . . . .	( )	( )
Waffles, homemade . . . . .	( )	( )
Pancakes, bought . . . . .	( )	( )
Waffles, bought, e.g. Eggo . . . . .	( )	( )
Sweet buns, cinnamon rolls, pop-tarts . . . . .	( )	( )
Pizza . . . . .	( )	( )
Eggs . . . . .	( )	( )
Cured meat - ham, bacon . . . . .	( )	( )
Peanut butter . . . . .	( )	( )
Cheddar cheese . . . . .	( )	( )
Cottage cheese . . . . .	( )	( )
Processed cheese slices . . . . .	( )	( )
Cheese spread, e.g. Cheez Whiz . . . . .	( )	( )
Yogurt, plain . . . . .	( )	( )
Yogurt, fruit flavoured . . . . .	( )	( )
Dried fruits, e.g., dates, prunes . . . . .	( )	( )
Fresh fruit . . . . .	( )	( )
Canned fruit . . . . .	( )	( )
Butter . . . . .	( )	( )
Margarine . . . . .	( )	( )
Jam, jelly . . . . .	( )	( )
Honey . . . . .	( )	( )
Sugar . . . . .	( )	( )
Other: _____		
_____		

## CODING SCHEDULE

FORTRAN CODING FORM  
COLUMN NUMBER

	VARIABLE	CODE
1 - 3	D1, I.D.	01 - 106
4	D2, Centre	1 - 6
5	D3, Card Number	1
6	Blank	
7	D4, Mother ?	Yes=2, No=1
8	D5, Respondent	Mother = 1 Father = 2 Aunt = 3 Nanny = 4 Sibling= 5
9	D6, Residence	Coquitlam = 1 Port Coquitlam = 2 Pt. Moody = 3 New Westminster=4
10	D7, Employed	Yes=2, No=1
11	D8, Hours Worked	0=0, 10=1 15=2, 20=3 25=4, 30=5
12	D9, Days Worked	0 to 7
13 - 14	D10, Travel, minutes	00 to 99
15 - 17	D11, Income	A = 075 B = 125 C = 175 D = 225 E = 275 F = 325 G = 375 H = 425 I = 474 J = 525 K = 575 L = 625
18	D12, Family Size	
19	D13, Number of Children Under 2 Years	
20	D14, Children 2 to 4 Years	
21	D15, Kindergarten Age Children	
22	D16, Elementary Age Children	
23	D17, High School Children	
24	D18, Out of School but at Home	
25	D19, Spouse	

26	D20, Grandmother	
27	D21, Grandfather	
28	D22, Other Relative	
29	D23, Boarder	
30	D24, Nanny	
31	Blank	
32 - 33	D25, Age of	50 to 65
	Preschooler (months)	
34	Family Influence	
35	D26, Under 2 child	N/A = 0
		No Influence=1
36	D27, Child in Preschool	Very Little =2
37	D28, 2 to 4 year old	Little =3
38	D29, Elementary Child	Moderate =4
39	D30, Teen	Much =5
40	D31, Self	Very Much =6
41	D32, Spouse	
42	D33, Other	
43	Blank	
44 - 45	D34, Television:	Yes=2, No=1
	D35, Hours watched	
	yesterday?	
46 - 47	D36, Hours watched	
	last weekend?	
48	D37, Breakfast Book	Yes=2, No=1
	Received?	
49	D38, Quick Breakfasts	Yes=2, No=1
	Booklet Received?	
50	D39, Sugar Content?	Yes=2, No=1
51	D40, Handy Nutrition?	Yes=2, No=1
52	D41, Other	
	Publications?	Yes=2, No=1
53	D42, No Publications	
	Received	Yes=2, No=1



COLUMN NUMBER	VARIABLE	CODE
1 - 3	D1, I.D.	01 to 106
4	D2, Centre	1 to 6
5	D3, Card Number	2 to 5
6	Blank	
7 onward	Food List	Yes = 2, No = 1
e.g.		
7 - 8	Milk:	
	chocolate	Yes = 2, No = 1
9 - 10	evaporated	Yes = 2, No = 1
	condensed	
11 - 12	whole, homogenized	Yes = 2, No = 1
77 - 78	Chocolate bars	Yes = 2, No = 1
79 - 80	Blank	
5	D3, Card Number	6
6	Blank	
7	B1, Parent Offered	
	Breakfast	Yes = 2, No = 1
	B2, Parent Offered	
8	Nutritious Beverage	Yes = 2, No = 1
10	B4, Parent Offered	
	High Quality Protein	Yes = 2, No = 1
12	B6, Parent Offered	
	Wholegrains	Yes = 2, No = 1
14	B8, Parent Offered	
	Sweetened Cereal	Yes = 2, No = 1

## FOOD CLASSIFICATIONS

### MILK PRODUCTS - BEVERAGES

evaporated milk  
whole milk  
2% milk  
skim milk  
buttermilk  
Dairy Maid 2%  
goat's milk

### WHOLE GRAIN PRODUCTS

Multigrain bread  
100% wholewheat bread  
60% wholewheat bread  
wholewheat crackers  
bran or fruit muffins  
bran "Eggo" waffles  
granola-type bars

### CEREALS WITH MORE THAN 15 PERCENT SUGAR

Froot Loops  
Honey Nut Cornflakes  
Honey Nut Cheerios  
Count Chocula  
Boo Berry  
Frankenberry  
Honeycomb  
Alphabits  
Sugar Crisp  
Fruity Pebbles  
Cocoa Pebbles  
Raisin Crisp  
Apple Jacks  
Sugar Smacks  
Cap'n Crunch  
Frosted Flakes  
Miniwheats  
Nabisco 100% Bran  
Buckwheat & Maple  
Apple Harvest Crunch  
Cracklin Bran  
Alpen

### HIGH QUALITY PROTEIN SOURCES

ham  
peanut butter  
eggs  
nuts  
cheddar cheese  
cottage cheese

### FRUITS AND FRUIT JUICES

fresh fruit  
dried fruit  
canned fruit  
raspberry cocktail  
apricot nectar  
applecot/orangecot  
applelime  
ribena  
grape juice  
cranapple  
cranberry cocktail  
pineapple juice  
canned juices (sweetened &  
unsweetened)

## MODIFIED MILK PRODUCTS

## BEVERAGES

Chocolate milk  
 eggnog flavor beads  
 Milkmate  
 Instant Brerakfast  
 Hot Chocolate Mix  
 Brown Cow Chocolate Syrup  
 Dr. Oh  
 Dairy Mail Chocolate Milk

CEREALS WITH LESS THAN  
15 PERCENT SUGAR

Cheerios  
 Life  
 Total  
 Red River/Sunnyboy  
 Quaker Oats  
 Creamy Wheat  
 Zoom  
 Vita B  
 Stone Buhr 7 Grain  
 Puffed Wheat  
 Farmhouse Bran  
 Whetabix  
 Grapenuts Flakes  
 Bran Crunchies  
 Rice Flakes  
 Team  
 Granola  
 Special K  
 Cornflakes  
 Product 19  
 Rice Krispies  
 Raisin Bran  
 All Bran  
 Bran Flakes  
 Shredded Wheat

## OTHER BAKED PRODUCTS

Cinnamon Rolls  
 Crumpets  
 Danish Pastry  
 Ding Dongs  
 Doughnuts  
 English muffin  
 Other "Eggo" waffles  
 Aunt Jemima waffles  
 Snackin' Cake  
 Frosted Pop Tarts  
 Plain Pop Tarts  
 Twinkies  
 Scones  
 Enriched White Bread  
 Raisin Bread

## LOW QUALITY PROTEIN SOURCES

luncheon meats  
 bacon  
 weiners  
 processed cheese

## OTHER BEVERAGES

Postum  
 Ovaltine  
 Tea, Coffee  
 Iced Tea  
 Lemonade  
 Grape Drink  
 "C" Plus  
 Super Soco  
 Quench  
 Hawaiian Punch  
 KoolAid  
 Tang  
 Rise 'n Shine

## Sugar Content of Breakfast Cereals

An Information Letter on the "Nutritional Requirements of Breakfast Cereals" sent from the Health Protection Branch in August 1977 to manufacturers included the following proposal for sugar declaration:

*"It is proposed that the total content of sugar and other sweeteners be declared as a percentage of the total weight of the cereal on the principal display panel of the label of all breakfast cereals. It is proposed that a declaration such as the following be used: "Contains (x)% sugar" when only sugar is used, or "Contains (x)% sugar and other sweeteners" when more than one sweetener is used. This declaration would be based on the total amount of hexoses and disaccharides in the product as sold."*

Although this proposal is still under review, the following results of a HPB survey of the sugar content of 74 breakfast cereals will be a useful reference for Nutritionists.

### SUGAR BY WEIGHT — 0-4.9%

Puffed Rice (Quaker)  
Oatmeal, Quick Cooking (McNair)  
Oatmeal, Quick Cooking (Quaker)  
Shredded Wheat, Spoon Size (Nabisco)  
Cream of Wheat, Regular (Nabisco)  
Puffed Wheat (Newport)  
Puffed Wheat Peter Pan (Quaker)  
Oatmeal, Instant (Quaker)  
Puffed Wheat (Quaker)  
Cream of Wheat, Mix 'n' Eat (Nabisco)  
Oatmeal, Instant (Quaker)  
Shredded Wheat, Malt Flavoured (Quaker)  
Red River Cereal (Maple Leaf)  
Shredded Wheat (Nabisco)  
Cream of Wheat, Quick (Nabisco)  
Oatmeal (Ogilvie)  
Grape-Nuts (General Foods)  
Cheerios (General Mills)  
Wheetabix (Wheetabix)  
Wheaties (General Mills)

### 5.0-9.9%

Corn Flakes (Kellogg's)  
Special K (Kellogg's)  
Corn Flakes (General Mills)  
Product 19 (Kellogg's)  
Bran Flakes (Kellogg's)  
Rice Krispies (Kellogg's)

### 10.0-14.9%

Grape Nut Flakes (General Foods)  
Rice Flakes (Nabisco)  
Raisin Bran (Kellogg's)  
All-Bran (Kellogg's)  
Granola, Crunchy with Honey and Almonds (Sunny Crunch)  
4 Grain Team (Nabisco)  
Pep (Kellogg's)  
Shreddies (Nabisco)

### 15.0-19.9%

Granola (Canadian Cereal Sales)  
Harvest Crunch (Quaker)  
Bran Flakes (General Foods)  
Mini-Wheats, Brown Sugar (Kellogg's)  
Buckwheat & Maple, Whole Wheat (Kellogg's)  
Granola, Crunchy, with Fruit & Nuts (Sunny Crunch)  
Mini-Wheats, Frosted (Kellogg's)  
Alpen (Wheetabix)  
Granola, with Nuts & Raisins (Canadian Cereal Sales)  
100% Bran (Nabisco)  
Bran Buds (Kellogg's)  
Granola, with Honey & Almonds (Sunny Crunch)  
Harvest Crunch, with Apples & Cinnamon (Quaker)  
Oatmeal, Instant, with Sugar and Spice (Quaker)

### 20.0-29.9%

Oatmeal, Instant, Pre-sweetened (Robin Hood)  
Granola, with Raisins (Sunny Crunch)  
Oatmeal, Instant, with Apple & Cinnamon (Robin Hood)  
Oatmeal, Instant, with Apple & Cinnamon (Quaker)  
Oatmeal, Instant, with Maple & Brown Sugar (Robin Hood)  
Oatmeal, Instant, with Maple & Brown Sugar (Quaker)  
Golden Honey's (Nabisco)  
Oatmeal, Instant, with Cinnamon & Spice (Quaker)  
Alpha-Bits (General Foods)  
Honeycomb (General Foods)  
Harvest Crunch, with Raisins & Dates (Quaker)

### 30.0-39.9%

Oatmeal, Instant, with Raisins & Spices (Quaker)  
Sugar Crisp (General Foods)  
Trix (General Mills)  
Frosted Flakes (Kellogg's)  
Captain Crunch (Quaker)  
Cocoa Puffs (General Mills)  
Lucky Charms (General Mills)  
Froot Loops (Kellogg's)

### 40.0-55.7%

Boo Berry (General Mills)  
Sugar Pops (Kellogg's)  
Count Chocula (General Mills)  
Apple Jacks (Kellogg's)  
Frankenberry (General Mills)

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Health Protection Branch

### DESCRIPTIVE COMMENTS ABOUT THE BREAKFAST PROGRAM

#### WEEK I:

- President of one of the parent groups commented: the program is going very well, the children are really participating.

- Teacher at another centre involved in the breakfast program commented that it is a great program; the kids are "right into it".

#### WEEK II:

- The program is going well, parents are getting involved. Approximately 40 percent of the pictures requested for the food collage were cut out by the parent. One child turned out to be allergic to milk products which stimulated a good discussion. Children are individually participating in the cooking experiences.

#### WEEK III:

- Program is going very well. The children want to evaluate their breakfasts on a daily basis as opposed to just twice a week.

## WEEK IV:

- Teachers report that the program is getting easier for them to do. Moms are starting to tell the teachers what their children have had for breakfast. Program is going so well - can hardly believe it is almost over! Throughout the four weeks it was evident that the instructions were being followed as presented.