

**EVALUATION OF THE EFFECTIVENESS OF AN INNOVATIVE
NUTRITION EDUCATION PROGRAM (FOODSTYLES:K)**

by

GAIL KATHLEEN HAMMOND

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Department of Human Nutrition

The University of British Columbia
Vancouver, Canada

Date October 9 1992

ABSTRACT

The nutrition of young children has been recognized as a priority health promotion issue for Canadians by Health and Welfare Canada. Childhood offers an opportunity, unlike any other time in the life cycle, to establish lifelong healthful eating patterns. By providing young children with the necessary tools to attain a basic understanding of nutrition concepts, we are making an investment in their future. Program evaluation is an essential key to obtaining the greatest gains from this investment.

The focus of this program evaluation was two-fold. First, Phase I was designed to assess teachers' perceptions of an existing early childhood nutrition education program (Foodstyles:K), with the intention of maximizing the effectiveness of future editions of the program. Second, Phase II was designed to evaluate the impact of this program on student's familiarity with 16 specific foods and their stated willingness to eat them, and to offer parents of the students an opportunity to contribute their perceptions of any effects of the program on their child's food behaviours.

A questionnaire was developed and pretested for Phase I to assess teacher use of the program. A return rate of 49% (n=404) was achieved with a maximum of 4 contacts per teacher. Three quarters of the teachers taught the program at some point following attendance at a Foodstyles:K workshop, and 47% of all respondents reported "current" use of the program during the school year which was evaluated (1989-1990). The outstanding reason for non-use of the program was a lack of both in class and out of class time. However, almost 1 out of every 5 teachers who

indicated past use of the program, voluntarily commented that the program was "good," "excellent," or "terrific."

An interview protocol was developed and pretested for Phase II to assess kindergarten student's familiarity with the 16 test foods and their stated willingness to eat them. Two questionnaires were also developed (pretest and posttest) to assess parents' perceptions of their children's willingness to eat the test foods. Several questionnaire items appeared on both the pretest and posttest questionnaires to permit a comparison of parents' responses at the start of the school year and again near the end. In addition, one question which appeared on both the pretest and posttest questionnaires, coincided with the same question asked of the children in terms of their stated willingness to eat the test foods. This permitted a comparison between parental perceptions of their child's willingness to eat the test foods and their child's actual responses.

Overall, students' familiarity with the 16 test foods increased significantly from pretest to posttest with the most significant increase appearing with foods that were introduced to the group of children who received program intervention.

No change was observed overall from pretest to posttest for student's stated willingness to eat the 16 test foods. Comparatively, no significant change was observed for parents' perceptions of their child's willingness to eat the test foods.

Significant differences did appear between parents and children in the intervention group for their responses indicating the child's willingness to eat both the introduced and non-introduced foods at pretest and again at posttest, with the child consistently stating s/he was willing to eat a greater

number of foods than perceived by her/his parent. With the exception at posttest with non-introduced foods only, there was no significant difference between parents and children in the control group for their responses to the child's willingness to eat the test foods.

Overall, agreement between parents' perceptions of their child's willingness to eat the test foods and their child's responses was 73.4%.

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CHAPTER I

INTRODUCTION

1. BACKGROUND

Learning to make wise food choices and developing good food habits in early childhood are believed to affect food selection and consequently nutritional status throughout life (Splett and Story, 1991; Lawatsch, 1990; Canada, 1985; Birch, 1979(b)). Early childhood educators have long acknowledged the importance of young childrens' early experiences on later attitudes toward education and life itself. Nutrition education is no exception. The kindergarten classroom provides young children with an ideal stimulating and supportive environment in which they can begin to learn elementary concepts of sound nutrition. It is critical that at an early age children be provided with the tools necessary to develop healthy eating habits. Support for this concept is stressed in Canada's Food Guide as the need for young children to "establish patterns of good nutrition, normal weight and an active lifestyle which will last them a lifetime" (Canada, 1982(b)).

Nutrition education goals for the kindergarten child should include: the acquisition of knowledge about their nutritional needs, the development of positive attitudes toward eating a wide variety of foods and the development of eating habits which foster health and well-being (McEwen and Kieren, 1984).

Through structured nutrition education programs with age-appropriate activities for learning nutrition concepts, kindergarten children can develop prerequisite knowledge and

understanding that lay the foundation for later more advanced nutrition concepts. With an appropriate introduction to the "discovery" of food, this foundation can lead to a genuine interest in foods and nutrition. To achieve such short-term and long-term goals, nutrition education programs need to be systematically designed, implemented and evaluated. Determining the effect of an early childhood nutrition education program requires evaluation at all levels of potential impact. To illustrate, consider a nutrition education program designed for use in the kindergarten classroom. It is imperative to conduct research which allows data collection (input) from teachers and students within the classroom, as well as the parents outside the classroom. Without such a comprehensive approach, the potential impact of the program may not be realized (Schwartz, 1985; Edwards, 1986; Crockett et al., 1988).

P-1 (formerly kindergarten) teachers in British Columbia have available for use a comprehensive nutrition education program, Foodstyles:K. This program was specifically developed and designed by nutrition educators at the British Columbia Dairy Foundation (BCDF) to introduce kindergarten children to a wide variety of foods. The program, however, has not yet been evaluated.

A. A CASE FOR NUTRITION EDUCATION IN THE KINDERGARTEN CURRICULUM

The atmosphere prevalent in kindergarten classrooms accommodates the naturally active learning styles of children aged 5-6 years. Kindergarten children come from as varied backgrounds as there are children in the class. For any one food, a wide range of frequency of exposure may be expected, from a child having no exposure to one being very familiar with a food. Children who have attended daycare or an organized preschool may have been exposed to a wider variety of

foods than children who have remained at home. Arrival at kindergarten presents a unique opportunity for children to discover new tastes and smells and foods, and to learn about cultures other than their own in a secure, caring, and stimulating setting.

Multi-sensory experiences enable the child to form functional concepts which lay the foundation for further development (Nelson, 1979). Because food is a familiar object that children can experience through all five senses, cooking offers varied and stimulating opportunities for acquiring long lasting learning. As acknowledged in the Province of British Columbia kindergarten curriculum guide (1984), in addition to experiencing and discovering new foods, cooking activities provide a means of reinforcing concepts from other curriculum areas.

Across the province, unified goals for P-1 children have been established by the Province of British Columbia, Ministry of Education. This denotes a major change from any previous education to which the kindergarten child may have had access in the past. Few, if any, pre-kindergarten programs are widely used in preschools or daycares across this province. The combination of uniform province-wide P-1 educational goals, the developmental stage of the kindergarten child, the fact that the kindergarten year is a critical one in terms of the child developing positive attitudes towards education and life itself, and the physical need for 5-6 year old children to consume healthy snacks throughout the day in addition to their regular meals all culminate to strongly support the need for official incorporation of nutrition into P-1 curricular activities.

B. FOODSTYLES:K: A DESCRIPTION

I. Program Objectives

Foodstyles:K is a comprehensive early childhood nutrition education program designed specifically for use in the kindergarten (P-1) classroom. The program, developed by nutrition educators at the British Columbia Dairy Foundation (BCDF), is available to all kindergarten (P-1) teachers in British Columbia. Recognizing the developmental stage of most kindergarten children, the program objectives are focused on *identification* of and *experiences* with a wide variety of foods. The program goal is for the children to develop positive feelings about trying new foods. It is well documented that increased variety in one's diet is a key to good nutrition (Canada, 1990).

In order to build positive feelings about trying new foods, the Foodstyles:K program provides the opportunity for children to experience real foods. Through identification and practical "hands-on/minds-on" experiences with foods the program provides a first structured, yet fun, introduction to launch the children on their journey into good nutrition. Program activities encourage tasting, cooking, discussion and keeping journals which allow expression of their feelings related to the introduced foods while the children develop new concepts about food. The skills of language and thought developed around this age assist the child to construct a relationship between wise food choices and the functions of foods for continued growth, maintenance of health and as a source of energy for learning and playing.

Teachers who choose to use Foodstyles:K in their classroom are required to attend an in-service workshop where they are provided with sound nutritional information, innovative teaching materials and a step-by-step teacher's guide. The teacher's guide contains colour pictures of

foods and master pages for the journal and class club activities. Easy and more challenging recipes for the cooking activity and a supply of "I tried it!" stickers are also included.

A major advantage of Foodstyles:K is that it is a very flexible nutrition education program in terms of teaching plans and the variety of foods which can be introduced. Foodstyles:K can be taught as single unit. The teacher may wish to introduce the foods suggested in the program all within a short period of time (eg. 12 foods in a month, ~3 foods per week). Alternatively, the teacher may choose a variety of foods other than those suggested in the kit for the children to become familiar with, taking into account the ethnic make-up of the class. Another option is for Foodstyles:K to be taught as an adjunct activity under a central theme, for example, a special occasion theme such as Chinese New Year. Children develop an appreciation of their own and other's cultural identity and can sample fortune cookies, cook stir-fried vegetables or chow mein, steam rice and/or make tea. Use of chopsticks provides another fun way to introduce the children to Chinese food.

A further advantage of Foodstyles:K is that the objectives are confined to identifying and experiencing a wide variety of foods. Given the limitations of the preoperational child, these objectives are suitable to the child's capabilities, thereby promoting a sense of positive self-concept derived from participation in Foodstyles:K activities. One of the characteristic limitations of preoperational children's thought processes is the inability to classify objects (Scarr et al, 1986; Yussen and Santrock, 1982). Therefore, the exclusion of this objective from Foodstyles:K increases the likelihood that the child's interest and motivation towards food will be heightened by their participation in tasks which lead to a successful end result.

The Foodstyles:K program consists of four core areas:

1. Food Introduction,
2. Foodstyles:K Cooking,
3. "Look what I tried" Journal, and
4. "I tried it!" Stickers and Class Club.

II. Food Introduction

The teacher's guide suggests two activities for introducing foods. The first is the *Mystery Food* can. This consists of a large, clean and empty tin can with the top part of a sock secured to the rim of the can. Pictures may be glued to the outside of the can. The food to be introduced is placed inside the can then passed amongst the children. Through sensory exploration (touching, smelling, listening to the sound it makes) the children describe what they are discovering about the food. After every child has had a turn, they are asked to identify the food. Removal of the food from the can confirms their identification. The second method of food introduction is the "*Who am I?*" activity. The food to be introduced is kept out of sight and the children are encouraged to ask questions about its properties to try to identify the food. The skills involved in cognitive and language development as well as prosocial behaviour are practiced with food introduction activities.

III. Cooking

Many recipes for Foodstyles:K cooking from easy (eg. peanut butter) to more challenging (eg. mini pizzas) are suggested in the teacher's guide. As safety is of primary importance for young children, safety precautions for each recipe are indicated where appropriate. The value of cooking extends beyond its obvious nutrition education aspect. Children want and need to

participate in food preparation. They feel a sense of responsibility by participating in an "adult" activity. Children develop a sense of social competence in preparing something for members of their group (Seefeldt, 1990). Age-appropriate cooking activities incorporate concepts as diverse as physical change, mathematical, temporal sequence, and language as well as reading and motor skills, cultural awareness and cooperation.

IV. Journals

The third core activity of Foodstyles:K is the "Look what I tried" journal. Children have the opportunity to express their feelings about each food introduced by printing and drawing on the journal pages. By referring back to their journals, children recall their new food experiences which helps to reinforce a sense of achievement in trying new foods. Language, aesthetic, artistic and intellectual development are all stimulated through completion of the journals. The creation of their own book will fulfill a strong sense of accomplishment in the children, particularly as they present their book to family members.

V. "I Tried It!" Stickers and Class Club

Foodstyles:K core activities conclude with the "I tried it!" stickers and class club activities. Following introduction of a food, the cooking activity and completion of a page in their journal, the children wear home an "I tried it!" sticker. The sticker is meant to alert the parent at home to be aware and curious about the food which was introduced at school that day. The sticker is not meant to serve as a reward. Birch et al. (1984(b)) have shown that children who are rewarded for trying a new food may increase consumption while the reward is in place. However, such contingencies produce negative shifts in preference, thereby reducing the probability of consumption once the reward is removed. A further link between the child's food-learning

experiences in their home environment and those at school is the "I tried it!" class club activity. A master copy of the parental letter and the form to be completed at home when a child tries a new food is included in the teacher's guide. Children return a form complete with their name and the name of the new food they tried outside the classroom. A bulletin board can be posted and as new foods are tried, magazine pictures of the foods can be displayed on the board. In our multicultural society, many different foods may be brought to the attention of the students. In this way, the "I tried it!" class club activity serves as an effective forum for exposing new foods to young children. With successive exposures, novel foods which are often rejected by young children, frequently become accepted (Birch, 1987(a)). Teachers may wish to incorporate some of these new foods into the cooking activity as a child who contributes to food preparation activities rarely refuses to eat the food introduced (National Dairy Council, 1988). This would increase the likelihood of achieving the objectives of Foodstyles:K.

VI. Supplemental Activities

In addition to the core activities, supplemental activities are suggested in the teacher's guide including; field trips, theme incorporation and children's literature with an extensive bibliography provided.

2. STATEMENT OF THE PROBLEM

A. PURPOSE OF THE STUDY

The nutrition of preschool children was identified as a high priority issue for the health promotion of Canadians (Canada, 1985). Yet, there is a paucity of documentation for evaluations of existing early childhood nutrition education programs in Canada and for describing the effectiveness of these programs on preschool children's eating behaviours.

This study was designed to evaluate; 1.) teachers' perceptions of the Foodstyles:K early childhood nutrition education program, 2.) effects of Foodstyles:K on kindergarten children's familiarity with and willingness to eat 16 test foods, and 3.) parents' perceptions of the effect of Foodstyles:K on their kindergarten child's eating behaviours. It encompassed the use of open- and close-ended questions in mail surveys to the teachers and parents. In terms of the children, Birch (1979(a)) has argued that preschoolers do not hesitate to communicate their likes and dislikes about food. They are, therefore, the preferred candidates (versus their parents) for collecting information regarding their food choices. In this study, dietary information was collected directly from each child in one-to-one interviews and was also collected from their parents through a mail survey, to test for a possible relationship.

Although Foodstyles:K in the present format has been available to P-1 teachers in British Columbia since 1987, it has never been evaluated. As evaluation is a critical component of any nutrition education program, it was important to determine if instruction using Foodstyles:K was meeting the program objectives.

3. RESEARCH QUESTIONS

A. PRIMARY RESEARCH QUESTIONS

This evaluation of the Foodstyles:K nutrition education program was designed to address the following 2 primary research questions:

1. Does exposure to the Foodstyles:K nutrition education program during the kindergarten year favourably affect student's recognition of a variety of selected foods?

2. Does exposure to the Foodstyles:K nutrition education program during the kindergarten year favourably affect student's stated willingness to eat a variety of selected foods?

B. SECONDARY RESEARCH QUESTIONS

This study was also designed to investigate the following secondary research questions:

3. Does the ability of kindergarten students to identify a variety of selected foods change over the period of one year of attendance at kindergarten?
4. Do food-related behaviours of kindergarten students (measured by willingness to eat a selection of foods) change over the period of one year of attendance at kindergarten?
5. Do parents' perceptions of their child's willingness to eat unfamiliar foods change over the course of the kindergarten year?
6. Do parents' perceptions of their child's willingness to eat a variety of selected foods change over the course of the kindergarten year?
7. Do parents' perceptions of their child's willingness to eat a variety of selected foods agree with their child's stated willingness to eat the same foods measured near the start and near the end of the school year?

C. DESCRIPTIVE RESEARCH QUESTIONS

8. To what extent is Foodstyles:K being taught by qualified P-1 (kindergarten) teachers in British Columbia?

9. For those teachers not currently using Foodstyles:K, why have they chosen to discontinue Foodstyles:K use or why have they chosen never to use Foodstyles:K in their classrooms?

4. HYPOTHESES

A. PRIMARY HYPOTHESES

Question 1:

There will be no significant difference between students exposed to Foodstyles:K during their kindergarten year compared with students not exposed to Foodstyles:K during their kindergarten year, in terms of the student's stated recognition of a variety of selected foods.

Question 2:

There will be no significant difference between students exposed to Foodstyles:K during their kindergarten year compared with students not exposed to Foodstyles:K during their kindergarten year, in terms of their food behaviour towards a variety of selected foods, as measured by their stated willingness to eat these foods.

B. SECONDARY HYPOTHESES

Question 3:

There will be no significant difference in the identification of a variety of selected foods near the start versus near the end of the school year for kindergarten students not exposed to the subject of nutrition during their kindergarten school year.

Question 4:

There will be no significant difference in the stated willingness to eat a variety of selected foods near the start versus near the end of their school year for kindergarten students not exposed to the subject of nutrition during their kindergarten school year.

Question 5:

There will be no significant difference in parents' perceptions of their kindergarten child's willingness to eat a variety of foods over the course of the school year.

Question 6:

There will be no significant difference in parents' perceptions of their kindergarten child's willingness to eat unfamiliar foods over the course of the school year.

Question 7:

For a variety of selected foods, there will be no significant difference between the parents' perceptions of their child's willingness to eat the foods, and their child's stated willingness to eat the same foods.

5. ASSUMPTIONS

For the purpose of this study, the following assumptions were made:

1. the questionnaires returned by the teachers were completed by the person to whom they were addressed,
2. the questionnaires returned by the parents were completed by one parent of the child,
3. the pretest and posttest parental questionnaires were completed by the same parent,
4. there would be no difference in responses to questionnaire items whether completed by either parent,
5. the teachers of the intervention classes complied with the requirement that they follow the steps in the Foodstyles:K teacher's guide to introduce the 8 test foods,
6. the teachers of the control classes complied with the requirement that they not discuss the subject of nutrition with their students in any organized or structured manner and kept all incidental discussion of food to a minimum,
7. the 8 "test" foods as well as the 8 non-"test" foods were easily recognizable as food models, and
8. the socio-economic status of the two study groups was similar.

CHAPTER II

LITERATURE REVIEW

1. OVERVIEW

Attendance at kindergarten exposes young children to an environment of discovery; both about themselves and their world. Through assimilating and accommodating new experiences, kindergarten-aged children readily process new information into their individual frameworks for learning. To introduce basic, healthy nutrition concepts, the kindergarten teacher can advantageously use these early childhood information processing characteristics in the stimulating and supportive environment of the kindergarten classroom.

The prospect of a healthy lifetime lies ahead of these children; however, this is dependent upon the condition that young children be provided with the essential keys to good health. Without instruction in the basic concepts for early development of healthy food patterns, the very real prospect of a healthy lifetime ahead may only be a vision. Children who eat properly do better in school and are livelier in their play than poorly nourished children (Canada, 1982(b)). In acknowledgement of this, the federal government has identified young Canadian preschoolers as a priority target population for the promotion of good nutrition (Nielsen, 1983). Numerous early childhood nutrition education programs have appeared in community and educational settings across the country in response to the government's position (Schwartz, 1985). Even though much progress has been made in this field over the past decade, there still remains a great need for evaluation studies of nutrition intervention programs in Canada (Canada, 1990).

A review of nutrition education from its simple beginnings circa the turn of this century through to the contemporary goals of early childhood nutrition education programs will be presented in this chapter. However, prior to this it is important to understand the capabilities and development of kindergarten-aged children. Thus, a brief review of the educational goals for kindergarten children and characteristics of children aged 5-6 years will be provided. The overall literature review will focus on the development of early childhood nutrition education programs in the public school system followed by their evaluation.

2. EDUCATIONAL GOALS FOR CHILDREN IN KINDERGARTEN

The first day of school is a landmark in every child's life. For many children, attendance at kindergarten is their first exposure to the school system of which they will be a part for the next thirteen years. It is a critical period in the young child's life as initial experiences and impressions leave indelible imprints which may later affect their achievement potential. It is, therefore, of utmost importance that educational materials, strategies and activities be aimed toward the development of self-worth in the kindergarten child. "The acquisition of a positive self-concept is particularly important, for then the [kindergarten] child is better able to develop cognitively" (Canadian Education Association, 1972). A thorough understanding of the capabilities of the kindergarten child is essential for education program goals to be achieved. To be specific, in 1984, the Province of British Columbia, Ministry of Education, defined seven goals of the provincial kindergarten curriculum. These goals included providing a variety of experiences that foster the child's:

- emotional development and well being,
- social development,

- development of social responsibility in a changing world,
- physical development and well being,
- aesthetic and artistic development,
- intellectual development, and
- language development.

Nutrition was considered a component of the goal of physical development and well being. Awareness of and the practice of good nutrition habits was considered possible through childrens' frequent exposure to and experiences with a variety of foods. Involvement of children in the preparation of food was recognized for its contribution to many facets of the kindergarten curriculum including; "increasing cultural awareness, expanding social, physical and logical knowledge and for integrating appropriate art and music activities" (Province of British Columbia, 1985).

Recently this curriculum guide was replaced by the document, *Year 2000: A Framework for Learning* (Province of British Columbia, 1989(a),(b)) (Appendix 1). However, the basic intentions of the kindergarten (P-1) curriculum have not changed.

The central purposes of a kindergarten program should be "to strengthen the desire to learn, and to provide opportunities to investigate, to observe and to create. There must [also] be provision for success and acceptance of the mistakes that are made as children seek to find answers that give satisfaction. [And] there must be opportunities and equipment for sound physical growth, for intellectual stimulation and development, and for the social learning that enable children to grow toward responsible citizenship" (Canadian Education Association, 1972).

3. CHARACTERISTIC TRAITS OF KINDERGARTEN-AGED CHILDREN

For many children, kindergarten corresponds to a time of reducing social dependence on their parent(s) and increasing reliance on their peers and on themselves. The important role of the parent begins to shift from that of control to that of coregulation with the child. Parents start guiding children from a distance as the child's world expands to include new "significant others," that is, those people whose opinion the child values and respects (Scarr et al., 1986).

The thought processes of children at this age can often be perplexing to adults. When engaged in dialogue with a 5 or 6 year old child, the adult is often left in a state of wonder as the child carries forth, verbalizing one idea followed by a seemingly unrelated idea. In order for the adult to understand the complexities of communicating and working with kindergarten-aged children, it is necessary to be cognizant of the conceptual, social, intellectual, physical and emotional development of these children. A brief review of the key features of a "normative" kindergarten-aged child follows.

A. CONCEPT DEVELOPMENT

Young children have limited thinking, language and representational abilities. They require first hand experiences for "concept formation" (Whitener and Keeling, 1984). Children's verbal abilities can often mislead adults. Children may speak using words as labels for concepts, although the child has not yet learned the concept. Through sensory exploration involving real life experiences, kindergarten-aged children develop concepts, or mental categories, in which to place new information. Concepts are general ideas which apply to many individual cases and are the building blocks of mature thought. Piaget has established that concepts have their origins in sensory experiences (Piaget, 1954). "The more varied, involving and direct those experiences

are, the better young children develop concepts and expand their horizons" (Christenberry and Stevens, 1984). Therefore, it is essential to use objective language when communicating concepts with kindergarten-aged children. The use of abstract words such as "willingness" should be avoided. To use food as an example of a concept, properties which can be introduced that are common to foods include: food is edible; plants and animals are sources of food; there are healthy and less healthy foods, and food supplies our bodies with the energy necessary for work and play. These and other nutrition-related concepts can be taught to 5 and 6 year olds, provided they are presented in a manner synchronous with the developmental stage of these children.

B. INTELLECTUAL DEVELOPMENT

Young children from 2 years up to the age of about 6 or 7 exhibit what Piaget termed "preoperational" thinking. Preoperational children require sensory exploration and physical "hands-on" experiences to develop and expand their knowledge base. Operations refer to internalized sets of actions that allow the child to do mentally what before was done by physical or sensory actions. While young children progress through the preoperational stage, they come to rely less on the physical and sensory explorations while increasing their ability to mentally solve problems. Piaget saw the child as an active learner and architect of her/his own learning experiences. He probed the process of *how* young children come to understand the basic principles of time and space, and cause and effect which serve to organize adult thinking. From his exhaustive research, Piaget developed a profile consisting of 4 stages of the qualitative changes in cognitive development which has become accepted as a golden standard in the field of child development (Appendix 2). The preoperational stage is the second stage in Piaget's profile.

Key features of this stage of cognitive development are described below (Scarr et al., 1986). The first two characteristics may be considered attributes while the remaining features may be considered limitations of young childrens' thought processes.

- 1.) Expansion of the child's symbolic system. He/she can form mental images based on concrete experiences.
- 2.) The acquisition of language. By age 6, a child may have a vocabulary of up to 14 000 words and may be able to readily create compound phrases (Scarr et al., 1986).
- 3.) The child's inability to use causal reasoning. Preoperational children use perception rather than logic in their reasoning.
- 4.) The appearance of egocentrism is probably the most salient feature of preoperational thought. The child can only view situations from her/his own perspective and not from that of another.
- 5.) The ability to learn based on intuition or insight. The preschooler is in transition between solving problems through physical trial and error and solving problems simply by considering the alternative.
- 6.) Animism, the practice of magical thinking. Children reason that inanimate phenomena must think and feel just as they do.

7.) The inability to understand the concept of conservation, the fact that some properties stay the same even though the shape or spatial arrangement has changed. This is primarily a result of centering, the inability to consider more than one dimension at a time. The preoperational child centres his/her attention on a single striking feature of whatever he/she is trying to think about and ignores other important and relevant features. Irreversibility of thought, or the inability to retrace mental steps, is another key feature of preoperational thought which also contributes to the lack of conservation in the preoperational child.

8.) Preoperational children also have difficulty with arranging objects or events in a logical order. Seriation or relational concepts, such as A may be bigger than B but smaller than C, are beyond the grasp of most preoperational children.

9.) Finally, the preoperational child is unable to form and reason with hierarchical classification. When given a random collection of objects that can be grouped on the basis of two or more properties (eg. colour and size), the child is seldom able to use these properties consistently to sort the objects.

C. SOCIAL DEVELOPMENT

For preschoolers, play is an integral part of their social development. Attention-seeking from their peers begins to replace affection-seeking from adults. In short, play reflects developmental changes. The infrastructure of the kindergarten curriculum and classroom reinforces childrens' attempts at prosocial behaviour. Play is established with self-imposed goals which may readily change at the whim of a player. There are no external rules with which to conform. Thus, through

trial and error, children learn how to behave with others, on their own terms. Nevertheless, peers expect and enforce self-approved behaviour and are quick to punish unacceptable behaviour (Scarr et al., 1986). To function well within a peer group, preschoolers must be flexible in their social behaviour. The development of social competence requires that kindergarten-aged children learn to manage their impulses, learn how to initiate social interaction, and know when to express or suppress their views. In general, they must learn appropriate "give and take". Through active practice of prosocial behaviour, the kindergarten child will achieve one of the most challenging and rewarding tasks of the school year, making friends.

D. EMOTIONAL DEVELOPMENT

Emotionally secure children increase the likelihood of achieving kindergarten goals. A major aim of the kindergarten curriculum is to promote a positive sense of self-worth in the child (Province of British Columbia, 1985; Canadian Educational Association, 1972). Confident children are ready for new learning, and in a cyclic nature, successful learning enhances self confidence. They are "more enthusiastic, more willing to accept challenges, and more able to concentrate and to persevere. They are [also] capable of showing a sensitivity to others while maintaining their unique identities" (Province of British Columbia, 1985).

E. PHYSICAL DEVELOPMENT

As with all aspects of development, the child's genetic potential is affected by environmental conditions. No aspect of child development is more visibly influenced by the quality of a child's diet than is his/her physical development. Muscular development occurs more rapidly in the large muscles than in the small ones; therefore, children learn motor skills progressively from gross to fine control. The 2 year old gains control of big arm muscles used, for example, to wipe a table.

The 3 year old has control of hand muscles such as those used for pouring liquids. The 4 year old is gaining control of his/her finger muscles necessary for such tasks as peeling or cracking an egg. By the time the child has reached 5 years, he/she has developed very fine muscle control and good hand-eye coordination suitable for such tasks as cutting and measuring (Hertzler, 1989). Physical-motor development results from an interaction between growth and learning. The kindergarten child is naturally active and curious and tends to involve her/his whole body in activities. This is possibly due to increased coordination developed during the preschool period.

F. SUMMARY

Upon entering kindergarten, the 5-6 year old has acquired gross and fine motor controls, cognitive skills, language abilities and social competencies. Well designed early childhood nutrition education programs reinforce these recent acquisitions of the kindergarten child at the same time as associating healthy eating habits with social fun and learning. Young children need to practice good nutrition habits for optimum growth and development, so they can enjoy the freedom of running, jumping and playing. Without proper nutrition, the incidence of conditions such as childhood obesity and dental caries increases (National Dairy Council, 1979).

Nutrition may have a powerful effect upon each of the above aspects of child development. It, therefore, is important that nutrition education programs designed for the preoperational child include age-appropriate activities which permit active participation by the child and that program objectives be harmonious with the developmental stage of these children. With this brief overview in mind, the evolution of early childhood nutrition education programs is presented.

4. EVOLUTION OF NUTRITION EDUCATION

A. ORIGINS OF NUTRITION EDUCATION

The origins of nutrition education in the classroom date back to the turn of the century when concerted efforts were undertaken to reverse the common occurrence of malnutrition and hunger in school children (Whitehead, 1957(a); Whitehead, 1957(b)).

In 1908, Dr. W.R.P. Emerson of Boston was credited with instructing the first nutrition education class for malnourished children. In a clinical setting, his "Class Method" segregated underweight children and encouraged competition amongst them for weight gain. Under these conditions the results were spectacular. It wasn't until ten years later that Emerson's "Class Method" was tested outside the clinical setting and within the classroom of Public School 64 in New York City (Whitehead, 1957(a)).

Evaluation after one term of school showed "no spectacular gains had been made by the children enrolled in the nutrition classes" of Public School 64 (Whitehead, 1957(a)). Major recommendations resulting from this study suggested that "under par" children should not compete with each other for weight gain in the presence of their normal weight peers, and that nutrition education needed to be taught in the regular classroom, but not under the conditions of the "Class Method."

In 1918, Dr. Lydia Roberts, a researcher and trained teacher, investigated the effects of nutrition education in a clinical setting using both the "individual method" and the "class method" approaches. The class method was considered more successful than the individual method due to the "group spirit" present in the "nutrition-clinic classes" (Roberts, 1935). Roberts realized the

lower grades in the public school system were not only a logical starting place for education in nutrition, but also represented a critical developmental stage at which nutrition information should be introduced (Cooper and Philip, 1974). Mary Harper, a nutritionist for the New York Association for Improving the Conditions of the Poor, and Dr. Mary Rose of Teachers College at Columbia University were also pioneers in the development of nutrition education in the classroom. Rose believed in "learning by doing" and that a food common to all the children's diets was the appropriate instrument around which to build her nutrition education lessons (Martin, 1978). She encouraged the children to take an active role in the implementation of food-related activities. Results from the work of both Rose and Harper confirmed that nutrition education could be done more effectively in a school situation rather than in a clinical setting and that active participation by the children was a key component in achieving nutrition education goals. Not just the "under par," but every child could be introduced to nutrition in an organized and uniform manner, and a prospective widespread improvement of childrens' nutrition could be anticipated. Thus, emphasis was placed on the instruction of nutrition with the overall goal of improving children's nutrition.

In 1929, the studies of Brown indicated that instruction designed to improve food habits was most effective when taught during the child's early school years (Whitehead, 1957(a)). The first to research the effects of peer influence on modifying preschool childrens' food preferences was Duncker, whose results clearly showed that younger children were more willing to imitate older ones than the reverse situation (Duncker, 1938).

In a subsequent study, Marinho extended the work of Duncker to test the social influence of 4-6 year old preschoolers' food preferences using a pretest/posttest design. This study was

conducted over a five week period, followed by a repeated posttest one year later to verify the duration of the peer effects (Marinho, 1942). She noted that success in modifying the childrens' preferences was a function of how well established were the initial preferences. Modification occurred more readily in younger preschool children who had less well established preferences. The new preferences of all these children (n=6) remained five weeks after the original peer influence had been removed, and persisted one year later.

B. INTEGRATION OF NUTRITION EDUCATION INTO LESSONS

Duncker's study of peer influence affecting the preschool child's food preferences, and Marinho's subsequent study of the longitudinal effects of social influence, pointed to the importance of teaching the foundations for developing good eating habits at this critical age of physical, intellectual, social and emotional development. In support of the earlier work by Rose and Harper, these studies strongly endorsed use of integrated nutrition education programs to include every child in the classroom; and to combine the teaching of nutrition with science lessons, math and spelling (Contento, 1980). This approach set the foundation for nutrition education programs over the ensuing fifty years.

In 1946, Bosley noted: "Nutritionists and educators should not lose sight of the real reason for nutrition education in their eagerness to disseminate information. The aim of nutrition education is a simple one: to establish good habits which will result in intelligent food selection, day by day, throughout life" (Contento, 1980).

C. A CHANGE IN FOCUS FROM PROVIDING NUTRITION INFORMATION TO INFLUENCING FOOD BEHAVIOUR

As nutrition educators became increasingly aware of the effectiveness of social influence toward achievement of the desired positive change in preschool children's eating habits, investigations of behavioural changes arising from such influences came to the forefront in nutrition education research. Numerous accounts in the literature indicate this shift from emphasis on nutrition information alone to that of influencing behaviour (Close and Sabry, 1978; Dierks and Morse, 1965; Lamb and Ling, 1946; Whitehead, 1957(b)).

Attention was turned toward principles of education which might serve as directives in the planning and development of effective nutrition education programs. Whitehead described the characteristics of such programs as including: (a) planning, development, and evaluation performed by those concerned directly with the existing nutrition education programs, (b) assessments of food habits that include customs, beliefs and attitudes as well as food intake, (c) a behaviour-centered rather than an information-centered approach, (d) increased community involvement, not just confined to classrooms or selected groups of children, and (e) development of the concepts of the science of nutrition and its related disciplines (Whitehead, 1957(b)).

To promote a behaviour-centered approach, teachers were encouraged to allow the children to actively participate in nutrition-related activities; for example, cooking. Martin and Reynolds studied the effects of improving children's acceptance of vegetables by teaching first grade children how to cook vegetable soup. Direct involvement in the cooking process resulted in the children readily accepting the vegetables. The observed significant improvement in eating habits

remained in effect well after the study was completed, thus supporting the theory of children's active participation by Rose (Martin, 1978).

It wasn't until the 1960s that the eating behaviour of preschoolers was studied more intently. Attitudes toward foods were putatively correlated with acceptance, choice, or preference of foods. Since the concept of attitude is difficult to define and even more difficult to measure, most studies relied on inference derived from the individual's words and actions as proxies for attitude (Henerson et al., 1987). For example, Dudley's work studying childrens' attitudes toward vegetables was based upon choices made from the presentation of one vegetable prepared in four different ways, and the proportion of food that was consumed (Dudley et al., 1960). These factors provided an indication of the attitude of these children toward different vegetable preparations. Other studies have selected the criteria of like/dislike (Eppraw et al., 1969; Dierks and Morse, 1965; Breckenridge, 1959); willingness/unwillingness (Birch, 1980(a)); and acceptance/non-acceptance (Close and Sabry, 1978; Harrill et al., 1972; Glaser, 1964;). Furthermore, many studies utilized maternal reports to determine food attitudes of the preschool child. The general results from these studies indicate a low correlation between the mother's reports and the children's food habits (Pliner and Pelchat, 1986; Birch et al., 1981; Birch, 1980(b); Sabry et al., 1974; Emmons and Hayes, 1973; Eppraw et al., 1969; Dierks and Morse, 1965; Breckenridge, 1959). This led to studies that obtained data on food behaviour directly from young children themselves. Birch (1979(a)) found children to be reliable sources of information regarding their food likes and dislikes.

D. ATTEMPTS TO IMPROVE CHILDRENS' FOOD HABITS

Several studies used various change strategies borrowed from educational and behavioural theories to improve the nutritional status of children (Kerrey et al., 1968; Cook et al., 1977). The nature of social interactions during snack times and the influence of change strategies on the acquisition and modification of preschoolers' food preferences was actively researched during the mid-1970s.

I. Familiarity

Creating a familiarity with foods through repeated exposure proved to be a particularly suitable change strategy for improving preschoolers' nutritional status, as measured by their food intake (Pliner, 1982). Zajonc stated that "mere exposure of the individual to a stimulus is a sufficient condition for the advancement of his[/her] attitude toward it" (Zajonc, 1968). Birch et al. (1987) later expanded upon this research to show that tasting (versus looking) exposure was necessary to obtain significantly positive changes in food preferences.

Food practices and attitudes that are established early during the preschool years are believed to affect an individual's food behaviour, and consequently nutritional status throughout life (Splett and Story, 1991; Lawatsch, 1990; Rozin, 1990; Hendricks et al., 1988; Davis et al., 1983; Birch 1979(b); Sipple, 1971; Kerrey et al., 1968). Therefore, fostering preschoolers' interest in food and food-related activities so they learn to make wise food choices and develop good food habits is critical to the success of any nutrition education program.

Since the ultimate goal of nutrition education for the preschooler is to establish good eating habits, investigation of the correlation between stated preference data and observed

consumption patterns was necessary. Birch designed and conducted an experiment to evaluate this correlation (Birch, 1979(b)). For the preference assessment procedures, each child was individually presented with 2 each of 8 different kinds of small open-faced sandwiches. The child was asked to take a small bite of each sandwich and to tell the investigator what type of sandwich he/she had tasted. The child was then told to point to the sandwich he/she liked to eat the very best. Once a food had been designated, it was removed from the set and the routine continued. For the consumption assessment procedures, children were instructed to take their plate to a table where the same type of sandwiches were located. They were also told to take more sandwiches when they wanted. The order of preference or consumption procedures was alternated over 4 days. Plate waste was recorded. The results indicated that the preference data was a very effective indicator of childrens' consumption patterns. Preschool children do not hesitate to reveal their likes and dislikes for food, furthermore, preference data could be directly, reliably, and easily obtained. When she studied preference data for sets of fruit obtained directly from preschool children, the results showed that familiarity accounted for the greatest proportion of variance in the preferences of three-year-olds, while sweetness was the most salient for four-year-olds (Birch, 1979(a)). This suggested a relatively rapid developmental shift in the preference structure between three and four years of age. Therefore, it was found critical to repeatedly introduce young children to as wide a variety of foods as possible, so they learn positive food attitudes and eating practices. The development of such behaviours results in an increased likelihood of adequate nutrient intake necessary for normal, healthy growth and development.

II. Social Influence Techniques

Other strategies derived from social learning theories advocated the motivation of changes in preschoolers' eating behaviours by emphasizing imitative learning or peer modelling.

Observations by Birch showed that peer modelling amongst preschoolers had a significant impact on food preference, choice, and consumption patterns of these children (Birch, 1980(a); Birch, 1987(b)). In one study, Birch directly obtained preference rankings for nine vegetables (Birch, 1980(a)). She then placed the preschoolers, aged 3-5 years, at a lunch table so that a "target" child who strongly preferred one vegetable (ranked first or second) was seated with three peers who had strong preferences for a vegetable that the target child had ranked eighth or ninth. On day 1, the target child selected first from a pair of vegetables offered on a tray and on days 2, 3 and 4 the target child chose last following the peers' selections. By day 4, 67% of the target children chose the vegetable preferred by the peer group, indicating the strong influence of peers on food consumption of children at this age. It was also noted that the younger children were more influenced by peer modelling than the older children. The results from Birch's study confirm those of Duncker (Duncker, 1938) and have been successfully replicated in other research which has studied the effects of social influence on the formation of child food preferences (Birch, 1987(a), Birch, 1987(b) ; Birch et al., 1981; Pliner and Pelchat, 1986).

Although parents shape a child's familiarity, behaviour and attitude toward foods (Perry et al., 1988; Birch et al., 1984(a); Birch et al., 1984(b); Birch et al., 1982; Alford and Tibbets, 1971), researchers who studied the relationship between parental food preferences and those of their children have shown consistently low positive correlations (Rozen et al., 1984; Pliner, 1983; Klesges et al., 1983; Harrill et al., 1972; Marinho, 1942). Birch explored this relationship between 128 preschool children and their parents. When preference rankings were obtained for a variety of foods, including fruits, vegetables, sandwiches and snack foods, only 10% of the mother-child and 6% of the father-child correlations were significant (Birch, 1980(b)). In contrast, young

childrens' food preferences significantly correlate with those of their siblings (Eppright et al., 1969) and other young children rather than those of their parents (Pliner and Pelchat, 1986).

E. APPEARANCE OF EARLY CHILDHOOD NUTRITION EDUCATION PROGRAMS

The compelling need for effective nutrition education curriculum guides was documented by educators and administrators (Cooper and Go, 1976). By the mid-1970s, a growing awareness of the importance of effective nutrition education resulted in an increasing number of curriculum guides being produced to assist teachers in nutrition instruction. One such curriculum guide, "Food...Your Choice" was developed by the National Dairy Council in the United States (National Dairy Council, 1979). A field test of the curriculum involved 1750 students in 79 experimental classes from K-6 and 1169 students in 50 control classes (Talmage et al., 1978). All students were pretested and posttested on a nutrition achievement test. The salient findings showed students across grades reported interest in the materials and particularly in activities requiring active student participation. Teachers also noted the high interest level of the students. Teachers indicated implementation of the curriculum was not difficult. Increased affective learning was observed from the 1st to the 3rd classroom observations, and finally, achievement gains of the experimental group from pretest to posttest were significant at all levels of the curriculum. Other data collected included a measure of the students' perceptions of their classroom learning environment as well as teacher and student interviews. As part of this study, documentation for need of a nutrition education curriculum was provided by teachers and administrators across the United States. Six characteristics of a nutrition education curriculum were identified as being essential. They included that it: (a) be sequential from kindergarten through the grade levels, (b) correlate with the existing curriculum, (c) be activity-centered, (d) be evaluated for effectiveness, (e) be comprehensive, and (f) be free of biases about people's food habits. The results of this

exploratory research served as a catalyst for developing subsequent K-12 nutrition education curriculums (Talmage et al., 1978).

F. ATTEMPTS TO INCREASE THE EFFICACY OF EARLY CHILDHOOD NUTRITION EDUCATION PROGRAMS

I. Curriculum Guides

Curriculum guides that detailed how to develop socially relevant nutritional concepts and objectives, how to design and implement learning activities, and how to evaluate the outcome resulted in increased positive learning effects on young children compared with the curriculum guides which lacked these essential components (Cooper and Go, 1976).

Further to the development of stimulating and comprehensive curriculum guides, attention was being focused on other techniques that would increase the effectiveness of nutrition instruction. Teacher's nutrition knowledge, attitudes and practices came under scrutiny. For the kindergarten child, their teacher is commonly an admired role model. Behaviour modification and effective learning is often achieved through young childrens' participation in role-taking, therefore, actions taken by the teacher may profoundly affect the child's present and future nutritional habits. To this end, it was essential that teachers receive adequate basic nutritional training in the form of strategies to encourage positive dietary practices, and training which facilitates dissemination of sound nutritional information at levels conducive to their students' developmental abilities.

II. Teacher Training

Teacher training in basic nutrition and instructional strategies aids in achieving effective and successful results from a nutrition education program. Research has shown that such training significantly improves instructor's nutrition knowledge, and influences the amount of time spent teaching nutrition in the classroom. Through the use of a nutrition education assessment instrument, both Olson and Soliah reported that teachers who had completed one or more nutrition courses in college, attended a workshop, or who were currently teaching nutrition, scored higher on the assessment of nutrition knowledge and nutrition-related attitudes and practices, than did teachers with no nutrition training or who were not teaching nutrition (Olson et al., 1986; Soliah et al., 1983). In general, nutrition education and increased knowledge of nutrition positively correlated with teachers' nutrition-related attitudes and practices .

III. In-Service Nutrition Education Workshops

For kindergarten and primary teachers, attendance at workshops is one frequent and convenient technique employed. The purpose of such workshops is two-fold: first, to provide teachers with basic nutrition information so that, second, they can teach their students how to select balanced and varied diets.

In Canada, the Ontario Milk Marketing Board offered nutrition education workshops to Ontario elementary teachers to aid them in the instruction of an early childhood nutrition education program. From January 1972 to June 1974, more than 7800 teachers participated in the three hour workshops (Cooper and Philip, 1974). Essential resource materials were provided and a step-by-step program guide for teaching nutrition to young children was distributed. After

attending the workshops, over 70% of the teachers decided to teach nutrition in their classrooms. The students of these teachers showed improved nutrition knowledge and eating behaviours compared with the students of the remaining 30% of teachers who had decided not to teach nutrition education in their classrooms (Cooper and Philip, 1974). It is noted, however, that a change in eating behaviour was based on a record of food consumption for one meal (breakfast) on both the day of the pretest and the posttest. This is a very short term measurement, hence it must not be considered as an absolute indicator of changes in eating behaviour.

The results of nutrition education workshops for K-6 teachers in the United States have shown a greater integration of nutrition into the school curriculum and increased enthusiasm for food amongst the children, and firmly established support of the workshop approach for nutrition educators of young children (Cook et al., 1977; Sodowsky, 1973).

All of these provisions, including curriculum guides, teacher training and in-service workshops, increase the likelihood that a teacher will decide to teach nutrition, with workshop attendance alone showing a significant association (Canada, 1990; Soliah, 1983; Cook et al., 1977; Cooper and Go, 1976; Sodowsky, 1973).

5. EVALUATION

Research into increasing the effectiveness of nutrition education programs and efforts to improve young childrens' eating behaviours, has led to nutrition education programs designed specifically for the preschool child. With the appearance of these early childhood nutrition education programs, research also branched toward the evaluation of nutrition education programs in an

attempt to optimize their effectiveness and to achieve the ultimate goal of nutrition education that Bosley had stated back in 1946.

Evaluation became a focus of nutrition education programs. The omission of this critical component serves to undermine the strengths of such programs. Teachers require objective feedback to be informed of the success rate of their instruction. Without ongoing feedback, the limitations of such programs often go unnoticed. Program planners also require feedback to make changes which serve to increase the efficacy of nutrition education programs. In response to this need for feedback and accountability, recent trends find more nutrition educators involved in evaluation than in other research activities (Achterberg, 1988).

A. EVALUATION RESEARCH

Evaluation research takes into account the dynamic nature of the classroom (Edwards et al., 1986). The classroom represents a situation where seldom can conditions be stringently controlled or students within the class randomized, hence, the teachers are often manipulated through randomization. Evaluation research compensates for these constraints and has thus become a valuable tool for studying school-based nutrition education programs (Talmage et al., 1978). Evaluation research serves to highlight the strengths and weaknesses of nutrition education programs and facilitates new direction for design and content of future programs.

In general, evaluation research is concerned with the effects of a treatment and the processes for implementing a treatment on behaviour. The dimensions of a theoretical model of evaluation research have been delineated in 6 steps (Talmage et al., 1978):

Step 1 DESCRIPTION OF THE INSTITUTIONAL CONTEXT

-the evaluator has a clear picture of the experimental conditions that form the context in which the change will take place,

Step 2 DESCRIPTION OF THE CHANGE

-the evaluator needs a clear picture of the proposed change, strategies for implementation, role descriptions of personnel involved, and relations of the change to other facets of institutional responsibilities,

Step 3 STATEMENT OF GOALS AND OBJECTIVES

-the evaluator needs a clear picture of the goals and objectives of the proposed change,

Step 4 EVALUATION DESIGN

-the evaluator maps out the design of the study, making decisions related to:

- model
- methodology
- data sources
- instrumentation
- data collection
- data analysis,

Step 5 TIME FRAME

-a task analysis, breakdown of institutional and evaluator responsibilities and time schedule,

Step 6 REPORTING

-the focus of the report is based on the needs of the client, and the report should facilitate decision making.

Theoretical models such as the one outlined above provide a framework to systematically plan and evaluate nutrition education programs. The model must provide a basis for establishing program objectives, identifying intervention targets and determining appropriate teaching strategies for new nutrition education programs (Gillespie, 1981), as well as serve as an important function in the revision of existing programs. Evaluation research models are often designed to be used throughout the developmental stages of nutrition education programs, however, they may also be used after the program has been in place (Edwards et al., 1986). Because evaluation research is a dynamic process, it requires sensitivity to the needs and constraints of each specific program and may be considered as, "both a measuring rod and a diagnostic tool; it [should] document the degree of effect and inform educators about what works (or not) and why" (Achterberg, 1988).

B. QUALITATIVE METHODS IN EVALUATION RESEARCH

Qualitative methods, in particular, have appeared with increased frequency over the past 5 or so years. Qualitative findings in evaluation research are highly responsive to input from the program participants. The evaluator seeks to collect data which reveal the participant's experiences with

the program activities and seeks to understand the participant's perceptions of the program. Qualitative methods can "provide the context of meanings in which the quantitative methods can be understood" (Filstead, 1979).

A combination of both innovative qualitative and traditional quantitative methods for evaluating nutrition education programs serves to compensate for the weaknesses of one method by the strengths of the other method, and vice versa. There is no single correct approach to all evaluation problems; some will be best addressed using a qualitative approach, others will need a quantitative approach, but probably most will benefit from a combination of the two (Herman et al., 1987). And, there are no rigid rules for making decisions for data collection methods in evaluation. The researcher must create a design to gather the best possible information that is appropriate for each specific situation (Patton, 1987).

The need to evaluate nutrition education programs available to teachers in British Columbia has never been greater than it is now. The Ministry of Education has committed itself to reorganizing the K-12 curriculum into an upgraded system. The level of education formerly known as kindergarten, is now referred to as P-1 (Primary-1), grade 1 becomes P-2, grade 2 becomes P-3, and grade 3 is referred to as P-4 in the new Primary Program. In this program, a child will be advanced from a lower to higher level when the teacher decides the child is ready to move on.

In the Primary Program, children from the ages of 5 to 8 will have opportunities to work side-by-side at various learner-based activity centres. The learning will come from the children, with the teacher present in the role of a facilitator. Within this structure, the occasion to introduce a

sequential, integrated nutrition program from P-1 through P-4 may be more fully realized in light of the increased social interactions amongst children of different age groups.

However, prior to considering the possibility of a nutrition education program that could be used from P-1 through P-4, existing programs need to be evaluated. Due to its ready availability to all British Columbia P-1 (kindergarten) teachers and to its potentially significant impact on kindergarten children's future health, Foodstyles:K is a logical program to evaluate for studying the effectiveness of nutrition education at the primary level. Childrens' willingness to try a wide variety of foods is a key to good nutrition and to developing good food habits. By observing and inquiring about various foods their peers consume, childrens' exposure to foods increases and the likelihood of trying new foods also increases (Birch, 1987(a)). It is, therefore, important to assess the effects of exposure to the Foodstyles:K program on childrens' knowledge of and willingness to try a variety of foods.

CHAPTER III

EXPERIMENTAL DESIGN AND METHODS

1. STUDY DESIGN

This evaluation was conducted in two consecutive phases: **PHASE I, Teachers' Perceptions of Foodstyles:K** and **PHASE II, Evaluation of the Nutrition Education Program, Foodstyles:K - Student and Parent Participation**. Phase I was designed to evaluate the perceptions of all eligible P-1 teachers in British Columbia regarding the Foodstyles:K nutrition education program. The choice of a mail survey was made to collect data for Phase I because of the necessity to contact a large number of teachers representing many regions of British Columbia (Berdie et al., 1986). Another main purpose of Phase I (April - June 1990) was to initialize contact with P-1 teachers in the Lower Mainland. This provided the opportunity for Lower Mainland teachers to volunteer to participate in Phase II beginning in September 1990. Due to the characteristics of the study design, teachers from outside the Lower Mainland were excluded from the opportunity to participate. Phase II was primarily designed to gather cognitive and behavioural information about a wide variety of foods from P-1 students through the use of one-to-one private interviews. Complementary parental information was gathered indirectly through the use of a questionnaire distributed to the parents of these students. A certificate of approval was received from the University of British Columbia Behavioural Sciences Screening Committee for Research and Other Studies Involving Human Subjects for both Phase I and Phase II of the study (Appendices 3 and 4).

2. PRE-EVALUATION PROTOCOL

A. DATA COLLECTION TOOLS

I. Questionnaires

a.) Phase I

i.) Development of Teacher Questionnaire

A questionnaire was developed to measure teachers' perceptions of the Foodstyles:K program. The questionnaire was divided into 3 sections: 1.) current use of Foodstyles:K in the classroom, 2.) past but not current use of Foodstyles:K in the classroom, and 3.) never having used Foodstyles:K in the classroom. Teachers were instructed to complete only the section which described their current use or non-use of Foodstyles:K. For teachers indicating past but not present use or having never used Foodstyles:K, items in the questionnaire were designed to collect the reasons why teachers did not currently use Foodstyles:K. For teachers indicating current use of Foodstyles:K in their classroom, items in the questionnaire sought to collect data on: 1.) the practical use of Foodstyles:K in the classroom, 2.) the teachers' perceptions of Foodstyles:K and its effect on the students, and 3.) the teachers' perceptions of parental support of the program.

Formative and summative approaches were used in tandem to obtain the desired data. A formative approach was taken with the intention of determining how the program may be improved, or how it could be more effective. These considerations represent process measures of the program which are in contrast to outcome measures. Inquiries leading to how effective the program actually is and what conclusions could be made about the effect of the program are representative of outcome measures. For these latter 2 considerations a summative approach was used in the questionnaire to evaluate teachers' perceptions of Foodstyles:K. Both closed-

and open-ended questions were included in the questionnaire, which permitted some depth of understanding of the teachers' responses (King et al., 1987).

ii.) Validation of Teacher Questionnaire

In developing the questionnaire, several steps were taken to ensure a high credibility of the instrument. To address the content validity of the questionnaire, consultation was made with; 1.) 2 Registered Dietitian/Nutritionists (RDN) with an interest in early childhood nutrition education, 2.) a group of nutrition educators at British Columbia Dairy Foundation (BCDF), 3.) 2 primary teachers; one who had attended a Foodstyles:K workshop prior to the date of inclusion for this study and had taught Foodstyles:K in the classroom and the other who was aware of the program but had not attended a Foodstyles:K workshop and therefore viewed the questionnaire strictly from a primary teacher's perspective, and 4.) 6 randomly selected teachers from the Foodstyles:K data base who participated in the evaluation as questionnaire pretesters.

iii.) Pretesting Teacher Questionnaire

A listing of all P-1 teachers who had attended a Foodstyles:K workshop between June 1987 and June 1989 was supplied by nutrition educators at BCDF. Randomly selected from this listing, six P-1 teachers were approached to pretest the teacher questionnaire (Appendix 5). Upon receipt of all pretesters' responses, modifications were made to the teacher questionnaire prior to its release to eligible P-1 teachers throughout the province. All 6 pretesters would be considered to be from urban areas of the province as defined by centres within the greater metropolitan Victoria and Vancouver areas.

Table 1 provides a list of the school districts and locations considered to be urban areas in British Columbia.

Table 1. School Districts Considered to be Within Urban Areas in British Columbia.

URBAN SCHOOL DISTRICT #	LOCATION
36	Surrey
37	Delta
38	Richmond
39	Vancouver
40	New Westminster
41	Burnaby
42	Maple Ridge
43	Coquitlam
44	North Vancouver
61	Victoria
62	Sooke
63	Saanich

b.) Phase II

i.) Development of Parental Questionnaires

Two questionnaires were developed to obtain data from the parents of the students; the pretest and posttest parental questionnaires.

The pretest parental questionnaire, distributed to all parents of the students in participating classes, was designed to collect: 1.) demographic information about their child, 2.) information regarding any food restrictions for their child, and 3.) general information regarding their child's food intake. The posttest questionnaire was designed to follow up on information provided in the pretest questionnaire. The items designed to collect general information regarding their child's food intake were repeated. Two other questions were also included. One question addressed whether parents had noticed any effects of exposure to Foodstyles:K over the school year through their child's request for specific foods introduced using the Foodstyles:K program. The other question was designed to allow parents to comment on any changes they may have observed in their child's food habits over the school year.

The pretest parental questionnaire included a consent form on the front page. The questionnaire itself contained selected-response items. Completion of this type of questionnaire required less time and effort from the parents compared with a construct-response type questionnaire. Although the information obtained was limited to that provided by the available responses, Henerson et al. (1987) recommend with greater than 20 or 30 respondents, a closed-response format be used to permit an accurate and quick summary of the results.

The posttest parental questionnaire principally consisted of closed-response items, but also included a few open-response items. This allowed the parents to supply helpful information regarding any possible effects of Foodstyles:K activities. The open-response format accommodates expression of the respondents' exact opinions such that they do not have to feel their responses are slotted into categories which do not accurately match their opinions (Henerson et al., 1987).

ii.) Validation of Parental Questionnaires

Content validation of both parental questionnaires followed a similar process to that used for the teacher questionnaire. Two RDNs with an interest in early childhood nutrition education were consulted as were several nutrition educators at BCDF. Two parents of kindergarten-aged children enrolled in classes using Foodstyles:K were also informally consulted and asked to comment on the content and wording of the questionnaires.

II. Interviews

a.) Phase II

i.) Development of Appropriate Testing Procedure

The purpose of the student interviews was to assess the participating children's identification of and willingness to eat a variety of selected foods. To aid in maximizing the potential effectiveness of the actual evaluation technique to be implemented in Phase II, the principle investigator attended two P-1 classrooms in separate elementary schools in Richmond, BC during April 1990. While visiting the first classroom observations of student-student and student-teacher interactions were recorded. In addition, this visit provided the principle researcher an opportunity

to practice appropriate dialogue with 5 and 6 year old children; attempting to communicate in simple, understandable language comprehended by both child and adult alike. This dialogue centered around activities in which each student was involved at the time of interaction. In the second classroom, the teacher encouraged active communication with the students, permitting food related questions to be asked individually of each student. The limitations of how questions must be conveyed to children operating in the Piagetian preoperational stage of cognitive development became obvious to the researcher. For example, "Would you please tell me which foods you like the most?" is an open ended, abstract question which provides very little guidance to the child. Children at this age must mentally imagine the food(s) then transform their thoughts into spoken language and rarely do preschoolers analyze their own thoughts and mental representations (Scarr, et al., 1986). Without having a direct question asked of them it is difficult for children of this age to develop clear thoughts and make an appropriate verbal response (Sundberg and Endres, 1984).

ii.) Pilot Testing the Student Interview Process

A selection of 3-dimensional plastic food models was pilot tested in June 1990 with a morning and afternoon kindergarten class in Creston BC. Phrasing of the questions was refined as a result of pilot testing the 16 food models with 14 students enrolled in each class. Exclusion of abstract words such as "willing" and "familiar" was necessary for the kindergarten student to understand the question being asked. Therefore, the question, "Which of these foods are you familiar with?" was modified to "If you know the names of any of these foods, please tell me the name of each food that you know." and the request, "Tell me which of these foods you are willing to eat." was changed to "If these foods were real, tell me which of these foods you would eat." The use of objective language in communicating with these children was essential to obtain the desired data.

Inasmuch as interviews involve greater costs, time and energy than questionnaires, presenting questions orally is a particularly appropriate method for gathering information from children (Van Dalen, 1979). To decrease possible confounding factors for interviewer bias, a skilled research assistant recorded all responses of the students. The recorder was introduced to all classes just prior to the pretest interviews with the same recorder present at both the pretest and posttest interviews.

Every attempt was made to make the interview a friendly and fun occasion for each student. Some students had their own story to tell, which was attentively listened to and responded to with supportive enthusiasm. Once a story was finished, the child's attention was focused back to the established interview procedure.

Structured interviews were conducted using a standardized procedure, with the same questions presented in the same manner and in the same order to each student (King et al., 1987). In eliciting information from the students, these interviews did not attempt to draw out information regarding beliefs and backgrounds, but sought to collect channelled responses to the two direct questions. Background information was obtained through a pretest questionnaire distributed to the children's parents.

b.) Sixteen Test Foods - Food Models

i.) Food Model Selection

The basic premise for selection of the food models was to equally represent all 4 food groups in Canada's Food Guide. Selection of 16 foods was made to accommodate 8 "test" foods

introduced using Foodstyles:K and 8 non-introduced foods. Each of these distinct groups consisted of 2 foods representing each of the 4 food groups in Canada's Food Guide. Food models were purchased from Directional Learning Canada Ltd., Elora ON.

FOOD MODELS				
CATEGORY	MFP	GRAINS	V/F	DAIRY
Introduced	fried egg	cornflakes	broccoli	yoghurt
	white fish	tortilla	salad	cottage cheese
Non-introduced	chicken drumstick	spaghetti	carrots	milk
	shrimp	cornbread	lima beans	swiss cheese

MFP: Meat, Fish, Poultry

V/F: Vegetables, Fruit

ii.) Food Models vs. Pictures

In August 1990, at University Hill Pacific Spirit Daycare at the University of British Columbia preliminary testing was conducted to assess for possible child preference for one data collection tool over another. Parental permission was obtained for all 5 year olds in attendance (n=8). To test for a preference of 4-colour food pictures versus 3-d food models, a duplicate set was made of 15 foods which were available in both mediums.

The previously refined questions were asked regarding identification of foods, and which foods the child would like to eat if the representations were real foods. With 4 children, the questions were posed using the food models first followed with the food pictures. With the other 4 children, the food pictures preceded the food models. Therefore, each child was asked to proceed through the testing procedure two times, one following directly after the other.

The children were then asked directly which set of foods they liked the best. Six out of eight children chose the food models, one child chose the food pictures, and one child did not express a preference.

From this sampling, there was no noticeable difference between the child's two sets of responses (models versus pictures). Also, there was no strong difference in responses between those 4 children who were tested with the food models first versus the other 4 children who were tested with the food pictures first.

These results were based on a very small number of children and could not, therefore, be statistically analyzed with confidence. However, they did provide an indication of preference for the food models over the pictures. These kindergarten-aged children were more animated with and preferred the food models; therefore, considering this information, the decision was made to proceed with the food models as the data collection tool.

B. SCHOOL DISTRICT AND PRINCIPAL PERMISSION

In June 1990, telephone contact was made with the volunteer teachers to review the inclusion criteria and to confirm their continued interest in participating in the evaluation during the subsequent school year.

Once participation had been confirmed, in July 1990 application was made to conduct research within each of the 7 school districts represented by the volunteer teachers. By October 1990, authorization had been granted (5 written and 2 verbal authorizations) to conduct the proposed research in all 7 school districts (Appendix 6) and by all principals of the schools involved.

3. EVALUATION PROTOCOL

A. DATA COLLECTION PROCEDURES

I. Phase I -- Teachers' Perceptions of Foodstyles:K

a.) Recruitment of P-1 Teachers

From their data base, nutrition educators at BCDF supplied the teacher names and school addresses of all eligible P-1 teachers in British Columbia. Eligible teachers were those who had attended a Foodstyles:K workshop in the period from June 1987 to June 1989. These teachers were recruited to participate in Phase I.

b.) Protocol of Teacher Questionnaire Mailings

The chronological sequence of mailouts to P-1 teachers was modelled after "The Total Design Model" (TDM) developed by Dillman (1978) for mail surveys and was modified to meet the time constraints of the school year. The implementation process of TDM is built on a set of complementary techniques that together are designed to produce a high quality and quantity of response.

i.) First Mailing of Teacher Questionnaire

A packet consisting of a covering letter, a coded questionnaire to ensure confidentiality of the information upon its return, and a self-addressed stamped return envelope was mailed on May 7 1990 to a total of 845 P-1 teachers in all areas of the province of British Columbia (Appendix 7). The code on each questionnaire consisted of a specific record number supplied by BCDF for each teacher. An opportunity to participate in Phase II of this study was given to all teachers (n=283) whose school address (point of contact) was located in the Lower Mainland (Appendix 8). The school districts considered to be located in the Lower Mainland included:

Burnaby (n=34)	Maple Ridge (n=22)	Richmond (n=25)
Coquitlam (n=42)	New Westminster (n=9)	Surrey (n=44)
Delta (n=20)	North Vancouver (n=23)	Vancouver (n=64)

ii.) First Follow-up

One week following the initial mailing, on May 14 1990 a postcard reminder was posted to all 845 teachers (Appendix 9). This postcard served as both a thank you for those who had responded and a courteous reminder for those who had not. It also provided a toll-free telephone number to

call for teachers who had misplaced their copy of the questionnaire and required another be issued to them.

iii.) Second Mailing of Teacher Questionnaire

Three weeks following the first follow-up, on June 4 1990 a second packet including a coded questionnaire, distinguishable from the one sent in the first, was mailed to all non-respondents. This consisted of an updated cover letter (Appendix 10) with a replacement questionnaire identical to that issued in the first mailout. Inserts were again included in packets addressed to teachers in the Lower Mainland.

iv.) Second Reminder Mailout

One and one half weeks following the mailout of the second teacher questionnaire, a second follow-up reminder postcard (Appendix 11) was mailed on June 15 1990 to all recipients of the second packet. Similar to the first reminder notice, again this served as both a thank you and an gentle reminder notice for those who had not returned their questionnaire. This notice represented the final approach attempting to contact all non-respondents to the date of mailout.

II. Phase II -- Evaluation of Foodstyles:K Nutrition Education Program - Student and Parent Participation

a.) Evaluation Design

The experimental design used for Phase II was a quasi-experimental, randomized groups, pretest/posttest design. The final number of volunteer Lower Mainland P-1 teachers from Phase I who met all the set criteria for eligibility to participate in Phase II, totalled 13. Using a random

number table (Mendenhall, 1983), each teacher was randomly assigned to either a "control" or "intervention" group.

If assigned to the intervention group, the teacher would continue with her usual method of teaching Foodstyles:K throughout the 1990-1991 school year. The only adjustment was the requirement for each teacher of an intervention group to introduce 8 specific "test" foods.

eggs	fish	cornflakes	tortilla
broccoli	salad	yoghurt	cottage cheese

These 8 test foods equally represented the 4 food groups in Canada's Food Guide and corresponded with 8 of the 16 3-d plastic food models utilized in the one-to-one interviews with each child.

If assigned to a control group, Foodstyles:K instruction would be excluded from the classroom curriculum for the 1990-1991 school year. All other direct instruction of nutrition would also be excluded. Beyond these restrictions, it was requested of each teacher of a control class to keep any incidental discussion of foods and nutrition to an absolute minimum. There was no additional workload for teachers of either group.

Following random assignment to either a control or intervention group, a group-appropriate cover letter and a general questionnaire was distributed to the parents of children attending all 13 classes. The purpose of this questionnaire was two-fold; first, to seek consent for their child to participate in the evaluation, and second, to collect specific information regarding their child's

eating habits including demographic information, food restrictions, and parental beliefs regarding their child's food preferences and habits. All those students for whom parental consent had been granted were then interviewed in an identical manner on a one-to-one basis both near the beginning of the school year (October/November) and again near the end (May/June).

b.) Recruitment of P-1 Classes

A total of 283 Lower Mainland P-1 teachers were approached in Phase I to volunteer to participate in Phase II, the evaluation of Foodstyles:K. From these 283 teachers, 161 returned their questionnaires and 28 included completed inserts indicating they were willing to allow their classes to be considered as possible participants in the evaluation. Twenty eight out of 161 returned questionnaires represented a 17% volunteer rate.

The criteria set to establish eligibility for participation included:

1. previous teaching of Foodstyles:K with at least one P-1 class,
2. willingness to be assigned to either a "control" or "intervention" group for the 1990-1991 school year,
3. agreement to allow the principal investigator and an assistant to assess childrens' willingness to try a variety of foods near the start and end of the 1990-1991 school year, and
4. agreement to introduce a minimum of 8 test foods throughout the school year.

From these 28 volunteer teachers, 15 were ineligible due to various reasons (Table 2), resulting in 13 teachers meeting all the established criteria. These 13 teachers represented 7 separate school districts, including:

Burnaby (n=2)

New Westminster (n=1)

Coquitlam (n=3)

Richmond (n=1)

Delta (n=1)

Surrey (n=3)

Maple Ridge (n=2)

Table 2. Reasons for Ineligibility of 15 Volunteer Teachers.

Teacher Number	School District	Reason for Ineligibility
1	Burnaby	Initially interested, but once school started she declined to participate.
2	Richmond	Cancelled because she was principal and had a K/1 split class.
3	New Westminster	Maternity leave.
4	Vancouver	Independent school.
5	North Vancouver	Teacher attended workshop outside the time period allowed in the study.
6	Maple Ridge	Teaching a multi-age grouping.
7	Vancouver	Changed from K to grade 1.
8	Vancouver	Changed from K to grade 1.
9	Surrey	Changed mind not to participate.
10	Maple Ridge	Family leave.
11	Burnaby	Not willing to be randomly assigned to either study group.
12	Vancouver	Teachers ESL only.
13	Vancouver	Changed grade level.
14	North Vancouver	Changed mind not to participate.
15	Surrey	Too busy with school construction, dual entry, new Primary program.

Following authorization from all the school districts and principals, a visit was made to the participating classes. This visit served as a means of; 1.) introducing the principle investigator and the project to the students, 2.) answering any questions the teacher or students may have had, and 3.) distributing the parental questionnaire packets for the students to take home.

Because of the delay in obtaining authorization from the appropriate school districts and principals, followed by the time necessary for the parents to return their consent forms and questionnaires, the actual student interviews did not commence until late October and were completed in late November 1990. All teachers had agreed not to introduce nutrition concepts prior to the pretest interviews.

c.) Pretest Data Collection Procedures

Collection of data at pretest was gathered from 2 sources, 1.) the parent pretest questionnaire, and 2.) the student interviews.

i.) Parental Pretest Questionnaire

The parental pretest questionnaire (Appendix 12) was completed by parents of students in both the control and intervention classes. A choice of "do" or "do not" give consent was available on the consent form which constituted the first page of the pretest questionnaire.

The parental pretest questionnaire consisted of 3 sections:

- 1.) GENERAL INFORMATION ABOUT YOUR CHILD,
- 2.) INFORMATION REGARDING FOOD RESTRICTIONS, and
- 3.) GENERAL INFORMATION REGARDING FOOD INTAKE.

The parental pretest questionnaire was distributed to the parents directly by the students in the participating classes. Parents were requested to complete the consent form and questionnaire and return it as soon as possible to BCDF in the enclosed self-addressed, stamped envelope. Alternatively, if the teacher was willing to collect the questionnaires, this route was followed. Two classes in the control group and 3 classes in the intervention group returned their questionnaires by mail. Four classes in each of the intervention and control groups returned their questionnaires directly to the teacher. For those questionnaires returned directly to the teacher, a code was placed on the outside of the return envelope and the teacher could check off the corresponding student on the class list. This way the teacher could request non-returned questionnaires (usually directly from the parent/caregiver when s/he collected their child after class). If any questionnaires were returned in an unsealed envelope, the teacher was asked to seal the envelope immediately upon receipt to ensure confidentiality of the information.

ii.) Student Pretest Interviews

Upon receipt of the consent forms and parental pretest questionnaires, the student interviews commenced. The interview schedule was generally guided by day plans of the teachers and the method and proportion of questionnaires returned. The following table indicates the questionnaire distribution pattern and the interview dates.

Table 3. Schedule of Pretest Interviews by Date of Interview.

Date of Interview	Date of PQ† Distribution	# of Intervening Days	Class	Group*	Method of PQ† Return
Oct. 22	Oct. 1	21	13	I	TEACHER
Oct. 24	Oct. 1	23	12	C	TEACHER
Oct. 25	Sept. 28	27	10	C	MAIL
Oct. 26	Oct. 3	23	04	I	MAIL
Oct. 26	Oct. 3	23	06	I	TEACHER
Nov. 2	Oct. 3	30	05	C	MAIL
Nov. 5	Oct. 5	31	11	C	TEACHER
Nov. 7	Oct. 10	28	01	C	TEACHER
Nov. 9	Oct. 15	25	09	C	TEACHER
Nov. 14	Oct. 10	36	03	I	MAIL
Nov. 16	Oct. 12	36	02	I	TEACHER
Nov. 21	Oct. 15	37	08	I	TEACHER
Nov. 26	Oct. 12	45	07	I	MAIL

*I = Intervention group

*C = Control group

†PQ = Parental pretest questionnaire

Students in both the control and intervention classes were treated identically during the interviews. Upon arrival at the school, the principal researcher and assistant introduced themselves at the office then met with the teacher of the participating class. A table was removed from the classroom and placed in the hall around the corner from the door to the classroom. This location was familiar to all the students in the class. This procedure prevented other students from

listening in which could influence their responses and prevented unnecessary distractions for the student being interviewed. The 16 food models were placed on one tray . A second empty tray was placed beside the first tray.

If the parental pretest questionnaires had been returned by mail, prior to visiting the school a data collection sheet had been prepared listing the participating childrens' names, record numbers and the 16 foods corresponding to the food models. If the parental pretest questionnaires had been returned to the teacher, the questionnaires were collected and the childrens' names and record numbers were recorded on the data collection sheet prior to commencement of the class.

Following re-introduction of the principal researcher and introduction of the research assistant, the student whose name appeared first on the class list and who had parental permission to participate was led to where the food models were in the hall. The student sat facing the researcher with the assistant sitting to the side and a little behind the student.

The typical interview proceeded as follows: (S=student, I=investigator)

I: "Hi ____ (NAME) ____."

S: "Hi."

I: "How are you this morning/afternoon?"

S: "Good."

I: "That's good. Now ____ (NAME) ____, what we have here are plastic models of different foods.

You may feel them if you like, but they are not to be put in your mouth."

S: May or may not feel them and/or comment.

I: "What I would like you to do is look at all the foods and pick up one food that you know the name of, tell me the name then put it onto this empty tray. I would like you to repeat this with each food you know the name of. If there are any foods that you don't know the name of, I will tell you the name when you have finished telling me the foods you know. Do you understand what to do?"

S: If "yes" then process begins. If "no" then the instructions were repeated and the researcher may ask, "Are there any foods here you know the name of?" to begin the process. Some students may have nodded their head indicating that they knew the name of a food. In this case, the researcher would ask, "Please point to the food you know the name of and tell me its name." to begin the process.

As the student named each food s/he knew, the assistant would record an "F" (for familiar) under the first column for that food.

I: Once the student had stopped naming foods, the researcher would say "Look at the foods on this tray (tray 1) and tell me if there are any foods left here that you know the name of." Once the student had finished, the researcher would provide the student with the names of any unfamiliar foods.

Once the first question was finished, any foods remaining on tray 1 were recorded as "UF" (for unfamiliar) on the data collection sheet. If, for any of the foods, the response by the student differed from the actual name of the food, that response was recorded. However, only true names of foods were accepted as familiar. For example, "peanuts" used to name lima "beans" was unacceptable, but "cereal" used to describe a bowl of "cornflakes" was acceptable.

The student was then asked to help the researcher transfer any remaining unfamiliar food models left on tray 1 to tray 2, and was told there was one more question regarding the foods.

- I: "Now I have a second question for you. What I would now like you to do is to tell me, "Which of these foods, if they were real, would you like to eat?" For those foods you would like to eat, please move them back to this tray (tray 1) and tell me the name of the food once again as you move them over. If there are any foods that you can't remember the name of, point to that food and I will tell you its name. For foods you wouldn't like to eat, just leave them on this tray. Do you understand what to do?"
- S: "Yes" was the usual response and the process began. Very little prompting was required with this second request.

As the student named each food s/he would like to eat, the assistant would record an "W" (for willing) under the first column for that food.

- I: Once the student had finished, the researcher would ask the student, "Are you sure there no foods left on this tray (tray 2) that you would like to eat." Once this was confirmed, the researcher ended with, "Great. Thanks very much (NAME) . Would you please ask (NAME OF NEXT PARTICIPATING STUDENT ON CLASS LIST) to come out. Thank you."

Once the first question was finished, any foods remaining on tray 2 were recorded as "UW" (for unwilling) on the data collection sheet. Then all food models would be randomly distributed on tray 1 to prevent any pattern of familiar foods or foods students were more willing to eat being

located on the tray closest to the child's seat. This routine continued until all the participating students in the class had been interviewed. Accommodation was made for students who did not have consent to participate but wished to take part in the activity. No data were collected from these students. Upon completion of pretest interviews for each class, the teacher of an intervention class was free to use the Foodstyles:K program to introduce the 8 "test" foods, while the teacher of a control class was required not to use Foodstyles:K, not to introduce or discuss foods and to keep any incidental talk of food to a minimum.

d.) Teacher Contact Through the School Year

Through the school year, the principle investigator contacted each teacher by phone to ensure that she was adhering to the requirements of the study group to which she had been randomly assigned. A standard set of questions was asked of each teacher depending on her assignment to either the control or intervention group (Appendices 13 and 14). These regular contacts served to remind each teacher of her responsibilities in the evaluation and helped to motivate some of the teachers in the intervention group to begin introducing the 8 "test" foods. See Table 4.

Table 4. Number of "Test" Foods Introduced in the Month Preceding Telephone Contact.

INTERVENTION CLASS NUMBER	MONTH OF TELEPHONE CONTACT			# OF FOODS LEFT TO INTRODUCE BEFORE POSTTEST INTERVIEW
	FEBRUARY	MARCH	APRIL	
01	3	1	2	2
02	3	-	2	3
03	-	-	6	2
04	-	-	3	5
05	-	2	5	1
06	1	3	3	1
07	5	1	1	1

At the final phone check during April 1991, a tentative posttest interview date was arranged for May 1991. All teachers of the intervention classes said they would comply with the requirement of introducing all 8 "test" foods by the time of the posttest interviews.

e.) Posttest Data Collection Procedures

i.) Student Posttest Interviews

A week prior to the tentative date arranged to conduct the posttest interviews, each teacher was contacted to confirm that all 8 "test" foods had been introduced using Foodstyles:K. If necessary, the posttest interview date was postponed to allow the teacher to fulfill the task of introducing all 8 "test" foods. Day plans and school activities were also taken into consideration when establishing

the posttest interview date. The posttest interviews were conducted in a manner which duplicated that used for the pretest interviews.

ii.) Parental Posttest Questionnaire

Upon completion of the interviews for each class, a parental posttest packet similar to the parental pretest packet was distributed to the students of each class to give directly to their parent(s) (Appendix 15). Parents were requested to complete the questionnaire and return it as soon as possible to their child's teacher. This procedure was followed for all classes. Again, the return envelopes were coded on the outside with each child's record number to aid the teacher in contacting those parents who had not returned their posttest questionnaire. As in collection of the pretest questionnaires, if any envelopes were returned unsealed, the teacher was asked to seal the envelope immediately upon its receipt to ensure confidentiality of the information.

Table 5. Schedule of Posttest Interviews by Date of Interview.

DATE OF POSTTEST INTERVIEW	DATE OF PRETEST INTERVIEW	# OF INTERVENING DAYS	CLASS	GROUP*
MAY 2 1991	NOV. 5 1990	178	11	C
MAY 2 1991	OCT. 25 1990	190	10	C
MAY 3 1991	OCT. 22 1990	194	13	I
MAY 6 1991	NOV. 7 1990	180	01	C
MAY 7 1991	OCT. 26 1990	194	04	I
MAY 7 1991	OCT. 24 1990	196	12	C
MAY 8 1991	OCT. 26 1990	195	06	I
MAY 14 1991	NOV. 2 1990	193	05	C
MAY 22 1991	NOV. 21 1990	182	08	I
MAY 22 1991	NOV. 9 1990	194	09	C
MAY 23 1991	NOV. 16 1990	188	02	I
MAY 24 1991	NOV. 26 1990	179	07	I
MAY 27 1991	NOV. 14 1990	194	03	I

*I = Intervention group

*C = Control group

B. COMPILATION OF DATA

I. Phase I

A coding system was developed for each of the 83 variables in the teacher questionnaire. Data sheets were prepared for use when the teacher data were entered into the computer. All records were identified by the teacher record number and by return of the first, or if necessary, the second questionnaire distributed to that teacher. A hard copy of all data was printed. Data for each record were reviewed for correctness by comparing the original questionnaire responses with the codes on the printout.

II. Phase II

a.) Coding of Identification Numbers

A system of coding was developed to differentiate every record in Phase II, including both student and parent data. The code consisted of 7 digits. A generic example is provided to illustrate the system developed.

Generic Example:

0	0	0	00	00
a	b	c	d	e

For a: If=1, then record belongs in the control group
If=2, then record belongs in the intervention group

For b: If=1, then record represents a student file
If=2, then record represents a parent file

For c: If=1, then record represents pretest data
If=2, then record represents posttest data

For d: If=01, then class #1 is represented

For e: If=01, then student #1 is represented

b.) Parental Questionnaire Data

In a procedure similar to that used for the teacher questionnaire, a coding system was developed for both parental pretest and posttest questionnaires. Two questions on the pretest questionnaire appeared identically on the posttest questionnaire. When 2 items appeared identically in both the pretest and posttest files, they were given the same variable label, with each pretest and posttest file made distinguishable by coding in its identification number. With items which appeared on only the pretest parental questionnaire, a code of 0 (non-applicable) was assigned to those same variable labels on the posttest file, and vice versa. Both pretest and posttest parental questionnaires were entered into the computer together as one file. A hard copy was printed of the parental questionnaires file. Coding on the printout was verified with the responses on each original questionnaire.

c.) Student Interview Data

Data entry sheets were prepared by translating the F, UF, W, and UW notations on the student record sheets into codes 1, 2, 3, and 4, respectively. Both pretest and posttest interview data were entered into the computer as one file, distinguishable by a code in the respective identification numbers. A comparison of coding on the student data file printout with the responses on the original record sheets verified all data entered into the computer file.

d.) Parent/Child Merged File

To analyze for potential relationships between parents and their corresponding child's responses at both pretest and posttest periods, a merged file was generated from the parent and student files. One record was produced for each child and corresponding parent data at pretest and a second record for each child and corresponding parent at posttest. The identification number

from the child file served to function as the identification number for each record with the variable labels differentiating the parent's responses from those of the corresponding child's.

4. STATISTICAL ANALYSIS OF DATA

All statistical analyses were conducted on the University of British Columbia mainframe computer using SAS (Statistical Analytical System) Version 5.08 (SAS, 1985). Statistical assistance was provided by Frank Ho of the University Computing Services.

A. PHASE I

Frequency distributions were generated for variables in the teacher questionnaire corresponding to questions 1 to 6, and 8 to 14, inclusive, using SAS Version 5.08. Pearson product-moment correlation coefficients were also generated for questions 5 and 6 to determine any relationships between the number of foods introduced using Foodstyles:K, the number of months teachers taught Foodstyles:K during the school year, and the number of times per month that teachers reported teaching Foodstyles:K. For question 7, means (\pm S.D.) were determined to describe teacher satisfaction with the program in reference to how easy the program was to teach, whether the introduction of a minimum of 8 foods was sufficient to meet the Foodstyles:K objectives, and whether the program objectives were easy to meet when teaching Foodstyles:K.

B. PHASE II

I. Parental Pretest Questionnaire Data

Frequency distributions were generated for questions 2, 3, 4, 5, 6, 7, 8, and 9 on the parental pretest questionnaire. These variables corresponded to parental reports of their child's sex, age,

sibling distributions, daycare attendance, nutrition at daycare, cultural background, and any information regarding food restrictions for their child. For variables in questions 2 to 6 inclusive, a chi-square analysis in the SAS CATMOD procedure was used to determine statistical differences between the frequency counts of two study groups. Missing data, or a response of "yes" to any one or more of the variables regarding food restrictions (questions 7, 8, and 9) resulted in the parental file and the corresponding child's file being flagged. Flagged files were excluded from all data analyses.

II. Parental Pretest and Posttest Questionnaires Data

On a scale of 5 to 1, parents were asked to rank their child's willingness to eat a wide variety of foods and to eat unfamiliar foods, (questions 10(a) and 10(b) on the parental pretest questionnaire, and questions 2(a) and 2(b) on the parental posttest questionnaire). Five indicated they "strongly agree" with the statement, 4 indicated they "somewhat agree, 3 indicated they were "neutral," 2 indicated they "somewhat disagree" with the statement, and 1 indicated they "strongly disagree" with the statement. A Wilcoxon rank sum procedure was used to analyze for statistical differences between pretest and posttest for each study group, and between each group at pretest and again at posttest.

a.) Parents' Perceptions of their Child's Willingness to Eat the Test Foods

Due to the discrete nature of the data for parents' perceptions of their child's willingness to eat the test foods, sums were generated from all positive responses and means were then performed on the sums. Because of the unbalanced nature of the 2 study groups, a 3 way General Linear Model (GLM) procedure was employed to determine statistical differences for the simple main

effects of the independent variables including; study group (control and intervention), time (pretest and posttest), and food category (introduced and non-introduced), and for all possible interactions. The sum of all positive responses for parents' perceptions of their child's willingness to eat the test foods, across study groups, food categories and time was the dependent variable in each GLM. To investigate significant results, a comparison of the means for the appropriate main effects was carried out using the independent Student's *t*-test (Hock et al., 1974).

III. Parental Posttest Questionnaire Data

Frequency distributions were generated for questions 4 and 5 on the parental posttest questionnaire. These variables corresponded to: 1.) whether or not their child had mentioned exposure at school to a food s/he requested at home, and 2.) whether the parents had noticed any changes in their child's eating habits over the school year.

IV. Student Pretest and Posttest Interview Data

For the initial analysis, all student data were grouped together at pretest, based on the fact that both groups did not differ significantly at the start of the school year, as was expected due randomization of the classes. Further analyses were conducted for each study group. Sums were generated for all positive responses and means were then performed on the sums. A 3 way GLM for 2 (study group) X 2 (food category) X 2 (time) was used to determine statistical differences between means of the sums for student familiarity and willingness parameters. An independent Student's *t*-test of the applicable means was used to determine the statistical significance of paired comparisons.

V. Parents' Perceptions of their Child's Willingness to Eat the Test Foods Compared with Their Child's Actual Response

Sums were generated for all positive responses and means were then performed on the sums. A 3 way GLM for 2 (study group) X 2 (food category) X 2 (time) was used to determine statistical differences between means of the sums for student familiarity and willingness parameters. An independent Student's *t*-test of the applicable means was used to determine the statistical significance of paired comparisons.

VI. Parent/Child Merged Data

Parents were asked at both pretest and posttest to report their perceptions of their child's willingness to eat the 16 test foods. The children directly provided this information through the use of food models in individual interviews. The degree of agreement between these two responses was then measured.

All variables corresponding to the introduced and non-introduced foods for both parent and child in each group were compared at pretest and then again at posttest. When a parent indicated their child was willing to eat a food and the child indicated s/he was willing to eat that same food at the same test time then a match was generated. Likewise , if a parent indicated their child was not willing to eat a food and the child also indicated s/he was not willing to eat that same food at the same test time, then a match was also generated. All other combinations of responses generated a non-match situation. Frequency counts were generated for agreement between parents' perceptions of their child's willingness to eat the 16 test foods and their corresponding child's responses. A chi square analysis of agreement between the responses was performed to

determine if any significant differences existed for the simple main effects including; group (control and intervention), time (pretest and posttest), and food category (introduced and non-introduced), and for all interactions.

CHAPTER IV

RESULTS

1. PHASE I - TEACHER QUESTIONNAIRE

The British Columbia Dairy Foundation (BCDF) data base of 855 kindergarten teachers who had attended a Foodstyles:K workshop between June 1987 and June 1989 contained 4 names in duplicate. These names were excluded as were the 6 pretesters resulting in 845 packets issued in the initial mailout.

Prior to the second mailout, a total of 219 out of 845 teachers (26%) had returned their questionnaires and 16 packets had been returned as undeliverable for the two following reasons including: "Moved, address unknown" (n=14), and "No longer there" (n=2) with no forwarding address. Six hundred and ten packets were posted in the second mailout on June 4 1990. From the second mailout, a further 6 packets were returned as undeliverable for the reasons of "Moved, address unknown" (n=5), and "No longer there" (n=1) with no forwarding address.

By the conclusion of the school year in June 1990, a total of 404 teacher questionnaires had been returned. This represented an overall response rate of 49% from 823 questionnaires that were delivered or forwarded to the correct address ($845-6-16=823$). Since the first questionnaire mailed out was distinguishable from the second, it was possible to monitor the return of each mailing. From the grand total of 404 questionnaires, the percentage of returns received from the first mailing was 69% (n=278) and the percentage of returns received from the second mailing was 31% (n=126).

Throughout the Results chapter all percentage figures are reported based on the actual number of responses to each questionnaire item. These figures exclude missing data.

A. RURAL VERSUS URBAN RESPONSES

Using the general definition of rural schools in British Columbia as being those schools outside the metropolitan Victoria and Vancouver areas, 178 urban teachers (44%) and 226 rural teachers (56%) returned their questionnaires. In the Foodstyles:K survey, the urban:rural response ratio was approximately equivalent compared with the distinctive 1:3 ratio obtained in Alberta.

B. USE

Of the 404 teachers who returned a questionnaire, 47% (n=190) indicated "current" use of the Foodstyles:K program, 29% (n=118) indicated "past-but-not present" use of Foodstyles:K and 24% (n=96) reported they had "never" used Foodstyles:K in their classroom following their attendance at a workshop.

I. "Past but not Present" Use Teacher Group

Of the 118 teachers indicating "past but not present" use, 112 (95%) provided their primary reason(s) for discontinuing use of Foodstyles:K in their classroom. The 3 principal reasons included (note: multiple responses were possible.):

1. Not teaching kindergarten (n=35/112; 31%),
2. Teaching plans were already established (n=18/112; 16%), and
3. General (not specific) time restrictions (n=18/112; 16%).

The figures in the brackets represent the actual number of responses over the potential number of responses, followed by that value represented as a percentage.

Table 6 details all teacher responses to this open-ended question (Q. 2(a)) requesting a primary reason for discontinuing use of Foodstyles:K in their classroom.

Table 6. Open Responses from Teachers in the "Past but not Present" Use Group Indicating Their Primary Reason(s) for Discontinuing Use of Foodstyles:K.

NUMBER of TEACHERS	REASON provided for Question 2(a)
35	Not teaching kindergarten
18	Teaching plans already established
18	General time restrictions
6	Organizational time requirements
5	Problems with reordering supplies
5	Lack of child interest
5	Multi-age grouping
5	Partial use of Foodstyles:K
4	Budgetary restrictions
4	Classroom time restrictions
4	Preference to teach nutrition incidentally at a suitable time rather than as a unit
4	Inappropriate level of activity
4	Competition with similar programs used in the classroom
3	Not suitable to teaching style
2	English as a Second Language (ESL) teacher
2	Teacher often ill
1	Nutrition incorporated into themes
1	Too many child allergies
1	Too large a class size
127	TOTAL

The majority of teachers who indicated "not teaching kindergarten" as their primary reason for discontinued use of the program reported a reassignment of teaching position from kindergarten (P-1) to a different level. Almost 20% of teachers who were "not teaching kindergarten" simply reported "no longer teaching kindergarten" with no further explanation for this change in circumstance.

Most teachers provided a single primary reason for no longer using Foodstyles:K, however, eleven teachers provided multiple reasons ranging from 2 to 3; hence, the total number of reasons (n=127) exceeds the total number of respondents (n=112) to this questionnaire item. The multiple reasons for this subset of 11 respondents in the "past-but-not present" use group are provided in Table 7. In as much as these teachers no longer taught Foodstyles:K, 24 voluntarily reported that they thought the program was "good" or "excellent."

Table 7. Reasons Given by 11 Teachers in the "Past but not Present" Use Group Who Provided Multiple Primary Reasons for Their Discontinued Use of Foodstyles:K.

TEACHER	REASONS		
	1	2	3
1	Teaching plans already established	General time restrictions	
2	Teaching plans already established	Organizational time requirements	
3	Teaching plans already established	Multi-age grouping	
4	General time restrictions	Partial use of Foodstyles:K	
5	General time restrictions	Budgetary restrictions	
6	Lack of child interest	Competition with similar programs used in the classroom	
7	Lack of child interest	Not teaching kindergarten	
8	Inappropriate level of activity	Problems reordering supplies	
9	Teaching plans already established	General time restrictions	Lack of child interest
10	Teaching plans already established	Classroom time restrictions	Lack of child interest
11	Teaching plans already established	Classroom time restrictions	Partial use of Foodstyles:K

A selection of potential factors which may explain reasons for discontinued use of Foodstyles:K by teachers in the "past-but-not present" use group appeared in question 2(b). Many of the primary reasons provided in the open-ended question (2(a)) corresponded to the itemized factors

presented in question 2(b) of the questionnaire. The 5 factors most frequently chosen by these teachers were:*

1. Classroom time restrictions (n=66/99; 67%),
2. A preference to teach nutrition incidentally at a suitable time rather than as a unit n=49/88; 56%),
3. Teaching plans were already established (n=36/80; 45%),
4. Budgetary constraints (n=31/82; 38%), and
5. Organizational time requirements (n=32/89; 36%).

*Note: The number of positive responses and the total number of respondents to each questionnaire item is provided. Percentages are calculated from these data for each factor.

Eight or fewer teachers reported the 5 factors least frequently chosen for discontinued use of Foodstyles:K. These factors included: the unavailability of supplemental books (n=8/76; 10%), a lack of child interest (n=7/77; 9%), the unsuitability of graphic materials (n=3/77; 4%), and a tie between a lack of colleague support (n=2/74; 3%), and unappealing aspects of the Teacher's Guide (n=2/75; 3%).

Table 8 provides a complete list of the frequency of factors reported by respondents in the "past-but-not present" use group.

Table 8. Frequency of Factors Which Contributed to the Decision by Teachers in the "Past but not Present" Use Group to Discontinue Their Use of Foodstyles:K.*

FACTOR	# of ACTUAL RESPONSES	RESPONSE RATE from POTENTIAL RESPONSES =118 (%)	# of YES RESPONSES	# of NO RESPONSES	YES RESPONSES PER # of ACTUAL RESPONSES (%)
Classroom time restrictions	99	84	66	33	67
Preference to teach nutrition incidentally	88	75	49	39	56
Teaching plans already established	80	68	36	44	45
Budgetary constraints	82	69	31	51	38
Organizational time requirements	89	75	32	57	36
Inappropriate level of activities	78	66	19	59	24
Competition with similar programs in the classroom	76	64	17	59	22
Reordering supplies	79	67	16	63	20
Lack of facilities	77	65	15	62	19
Unlikelihood of field trips	76	64	12	64	17
Management of paperwork	79	67	13	66	16
Lack of inclusion as a recommended resource	73	62	9	64	12
Unavailability of supplemental books	76	64	8	68	10
Lack of children's interest	77	65	7	70	9
Unsuitable graphic materials	77	65	3	74	4
Unappealing aspects of the Teacher's Guide	75	63	2	73	3
Lack of colleague support	74	63	2	72	3
Other	87	74	1	86	1

*The potential number of responses was 118 for each factor in the "past-but-not present" use group.

II. "Never" Use Teacher Group

Of the total number of 96 teachers who indicated they had "never" used the Foodstyles:K program following attendance at a workshop, 3 (3%) reported they made their decision during the workshop, 25 (26%) decided after the workshop, and 68 (71%) did not respond to this item inquiring about the time of their decision not to teach Foodstyles:K.

A total of 78 out of 96 (81%) teachers in the "never" use group, including the 28 teachers who indicated when they made their decision not to use Foodstyles:K, reported their primary reason(s) for not using Foodstyles:K in their classrooms. In response to open-ended question 3(b), the three leading reasons reported were:

1. Not teaching kindergarten (n=32/78; 41%),
2. General (not specific) time restrictions (n=10/78; 13%), and
3. Employed as a French language teacher (n=9/78; 11%).

Table 9 details the reasons provided by all teachers who responded to this open-ended question inquiring about their primary reasons for not teaching Foodstyles:K to their students.

Table 9. Open Responses from Teachers in the "Never" Use Group Indicating the Primary Reason(s) for Their Decision Not to Use Foodstyles:K.

NUMBER OF TEACHERS	REASON
32	Not teaching kindergarten
10	General time restrictions
9	French language teacher
8	Nutrition incorporated into themes
7	Teaching plans already established
6	Never attended a Foodstyles:K workshop
4	Organizational time requirements
2	Budgetary restrictions
1	Inadequate initial supply of materials in the kit
1	Classroom time restrictions
1	Preference to teach nutrition incidentally at a suitable time rather than as a unit
1	Too many child allergies
1	Unsuitability of recipes
83	TOTAL

As can be seen in Table 10, most teachers in the "never" use group provided a single primary reason for deciding not to teach Foodstyles:K in their classroom, however, 5 teachers provided two primary reasons. Therefore, the number of reasons (n=83) is greater than the actual number of teachers (n=78) responding to this question. The multiple reasons given by this subset of 5 teachers in the "never" use group are provided in Table 10.

Table 10. Multiple Primary Reasons Provided by the 5 Respondents in the "Never" Use Group for Their Decision Not to Use Foodstyles:K.

TEACHER	REASONS	
	1	2
1	General time restrictions	Teaching plans already established
2	General time restrictions	Not teaching kindergarten
3	General time restrictions	Not teaching kindergarten
4	General time restrictions	Budgetary restrictions
5	Teaching plans already established	Organizational time requirements

A selection of potential factors which could explain reasons for non-use of Foodstyles:K by teachers in the "never" use group was provided in the questionnaire. Many of the primary reasons teachers provided in the open-ended question 3(b), also appeared as itemized factors in question 3(c) of the questionnaire. The 5 factors most frequently chosen were:*

1. Classroom time restrictions (n=38/50; 76%),
2. Teaching plans were already established (n=36/48; 75%),
3. A preference to teach nutrition incidentally at a suitable time rather than as a unit (n=31/49; 63%),
4. Organizational time requirements (n=20/43; 46%), and
5. Budgetary constraints (n=17/40; 42%).

*Note: The number of positive responses and the total number of respondents for each questionnaire item is provided . Percentages are calculated from these data for each factor.

The 5 least frequently chosen factors which contributed to these teachers decision never to use Foodstyles:K were reported by 3 or fewer teachers and included a tie between the unavailability of supplemental books (n=3/32; 9%), a lack of colleague support (n=3/34; 9%), the unsuitability of graphic materials (n=3/34; 9%), and the lack of inclusion as a recommended resource (n=3/35; 9%), followed by a single response to unappealing aspects of the Teacher's Guide (n=1/35; 3%).

Table 11 provides a complete list of the frequency of factors reported by respondents in the "never" use teacher group.

Table 11. Frequency of Factors Contributing to the Decision by Teachers in the "Never" Use Group Not to Teach Foodstyles:K.*

FACTOR	# of ACTUAL RESPONSES	RESPONSE RATE from POTENTIAL RESPONSES =96 (%)	# of YES RESPONSES	# of NO RESPONSES	YES RESPONSES PER # of ACTUAL RESPONSES (%)
Classroom time restrictions	50	52	38	12	76
Teaching plans already established	48	50	36	12	75
Preference to teach nutrition incidentally	49	51	31	18	63
Organizational time requirements	43	45	20	23	46
Budgetary constraints	40	42	17	23	42
Competition with similar programs in the classroom	38	40	13	25	34
Unlikelihood of field trips	38	40	10	28	26
Lack of facilities	36	37	9	27	25
Management of paperwork	37	38	8	29	22
Inappropriate level of activities	37	38	5	32	13
Unsuitable graphic materials	34	35	3	31	9
Unavailability of supplemental books	34	35	3	31	9
Lack of inclusion as a recommended resource	35	36	3	32	9
Lack of colleague support	34	35	3	31	9
Unappealing aspects of the Teacher's Guide	35	36	1	34	3
Other	38	40	-	38	-

*The potential number of responses was 96 for each factor in the "never" use group.

III. "Current" Use Teacher Group**a.) Method of Teaching Foodstyles:K**

From the total of 404 teachers who returned a questionnaire, 190 (47%) reported they currently used Foodstyles:K in their classrooms. When asked to select their method of teaching Foodstyles:K, 125 teachers in the "current" use group indicated a single method of teaching Foodstyles:K, 60 teachers indicated use of multiple methods and 5 teachers did not respond to this questionnaire item.

Of the 125 teachers who indicated a single method, 42 (34%) favoured incorporating Foodstyles:K into some classroom activities, 38 (30%) indicated they incorporated Foodstyles:K into all classroom activities, 24 (19%) reported teaching Foodstyles:K on its own, and 21 (17%) teachers indicated they used a method "other" than the 3 mentioned above. When asked to describe the "other" method used, 13 of the 21 teachers provided a description. Using Foodstyles:K materials to augment a theme on "Nutrition" (n=6) was the most frequent "other" method reported, followed by incorporation of Foodstyles:K into general classroom themes (n=3) (eg. "Holidays", "The Farm"). The 2 "other" methods described by these teachers were the use of Foodstyles:K worksheets after cooking (n=2) and using Foodstyles:K activities in a nutrition health unit (n=2). See Appendix 16 for teacher descriptions of the "other" method they reported using to teach Foodstyles:K.

Of the 60 teachers who indicated they used greater than one method when teaching Foodstyles:K, the most frequent pattern of multiple method use (n=12) was reported as teaching Foodstyles:K at times on its own and at other times incorporating it into some classroom activities. Another pattern of multiple method use which teachers reported they used almost as frequently

(n=11) as the above pattern was incorporating Foodstyles:K into some classroom activities in combination with a method "other" than teaching Foodstyles:K on its own or incorporating it into all classroom activities. Nine of these 11 teachers provided a description of the "other" method they used to teach Foodstyles:K in combination with incorporating Foodstyles:K into some classroom activities. The program was reported to be incorporated into a "Nutrition" theme by 3 teachers, incorporated into general themes (eg. "Chinese New Year", the "Three Bears", the letter "B") by 3 teachers, 2 teachers reported using it in conjunction with their cooking program, and one teacher reported using some of the Foodstyles:K ideas in her "Restaurant" theme.

The third most frequent pattern of multiple method use was tied by 9 teachers who reported they taught Foodstyles:K in some activities at times and in all classroom activities at other times, and by another 9 teachers who reported they used Foodstyles:K on its own at times and in all classroom activities at other times. See Table 12 for a detailed account of the choice of teaching methods and their frequency of use by teachers in the "current" use group. Descriptions of the "other" methods used in conjunction with teaching Foodstyles:K on its own, in some classroom activities or in all classroom activities appears in Appendix 17. These descriptions of the "other" methods used appear exactly as reported by teachers in the "current" use group.

Table 12. Choice of Methods for Teaching Foodstyles:K Reported by Teachers in the "Current" Use Group.

ON ITS OWN	INCORPORATED		"OTHER"	TOTAL
	INTO SOME ACTIVITIES	INTO ALL ACTIVITIES		
X	-	-	-	24
-	X	-	-	42
-	-	X	-	38
-	-	-	X	21
X	X	-	-	12
X	-	X	-	9
X	-	-	X	4
X	X	-	X	1
X	-	X	X	5
X	X	X	X	1
-	X	X	-	9
-	X	-	X	11
-	X	X	X	3
-	-	X	X	5
				185

b.) Frequency of Teaching Foodstyles:K

A total of 139 teachers in the "current" use group (73%) indicated the number of times per month they taught Foodstyles:K in their classroom. The frequency of teaching Foodstyles:K during the previous school year was reported to range from 1 to 20 times per month. Twenty nine percent (n=41) of all teachers in the "current" use group who responded to this question indicated they taught Foodstyles:K once a month while a further 29% (n=41) indicated they taught Foodstyles:K twice a month. The third most common frequency (15%; n=21) at which "current" use teachers taught Foodstyles:K was 4 times per month .

See Figure 1 for a detailed account of the times per month the "current" use respondents (n=139) indicated they taught Foodstyles:K throughout the 1988-1989 school year.

NUMBER OF TIMES PER MONTH
OF TEACHING FOODSTYLES:K

"Current" Use Teachers

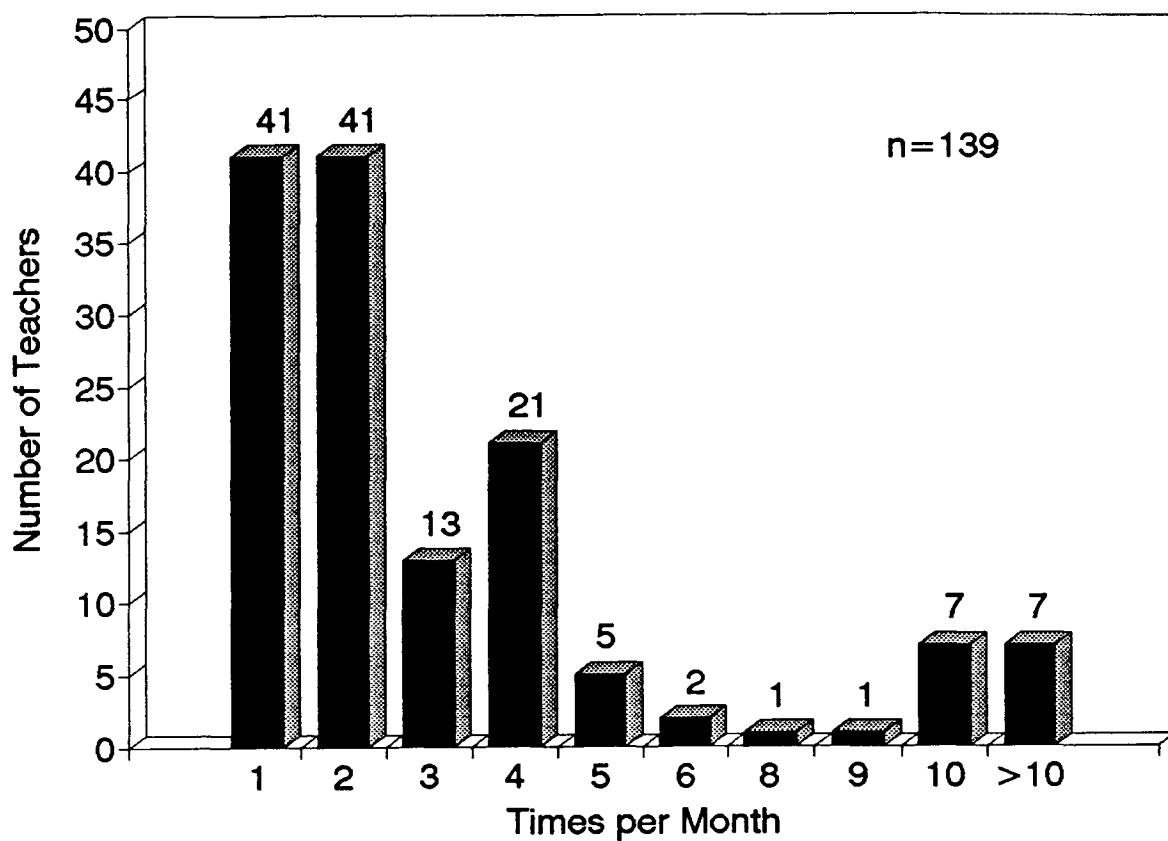


Figure 1. The Number of Times Per Month in the School Year Teachers in the "Current" Use Group Reported Teaching Foodstyles:K.

A total of 146 teachers in the "current" use group (77%) indicated the number of months they taught Foodstyles:K during the past school year. A range from 1 to 10 represented the number of months the teachers reported teaching Foodstyles:K during the 1988-1989 school year, with the exception of one teacher who indicated teaching Foodstyles:K 12 months during the school year. This datum was excluded from data analysis resulting in 145 valid responses. Most frequently, Foodstyles:K was reportedly taught during all 10 months of the school year (n=33; 23%). This was followed in frequency by 1 month of teaching Foodstyles:K (n=26; 18%), and thirdly, by teaching Foodstyles:K 8 months of the school year (n=19; 13%).

Figure 2 illustrates the frequency of months in which Foodstyles:K was taught in the 1988-1989 school year by teachers in the "current" use group.

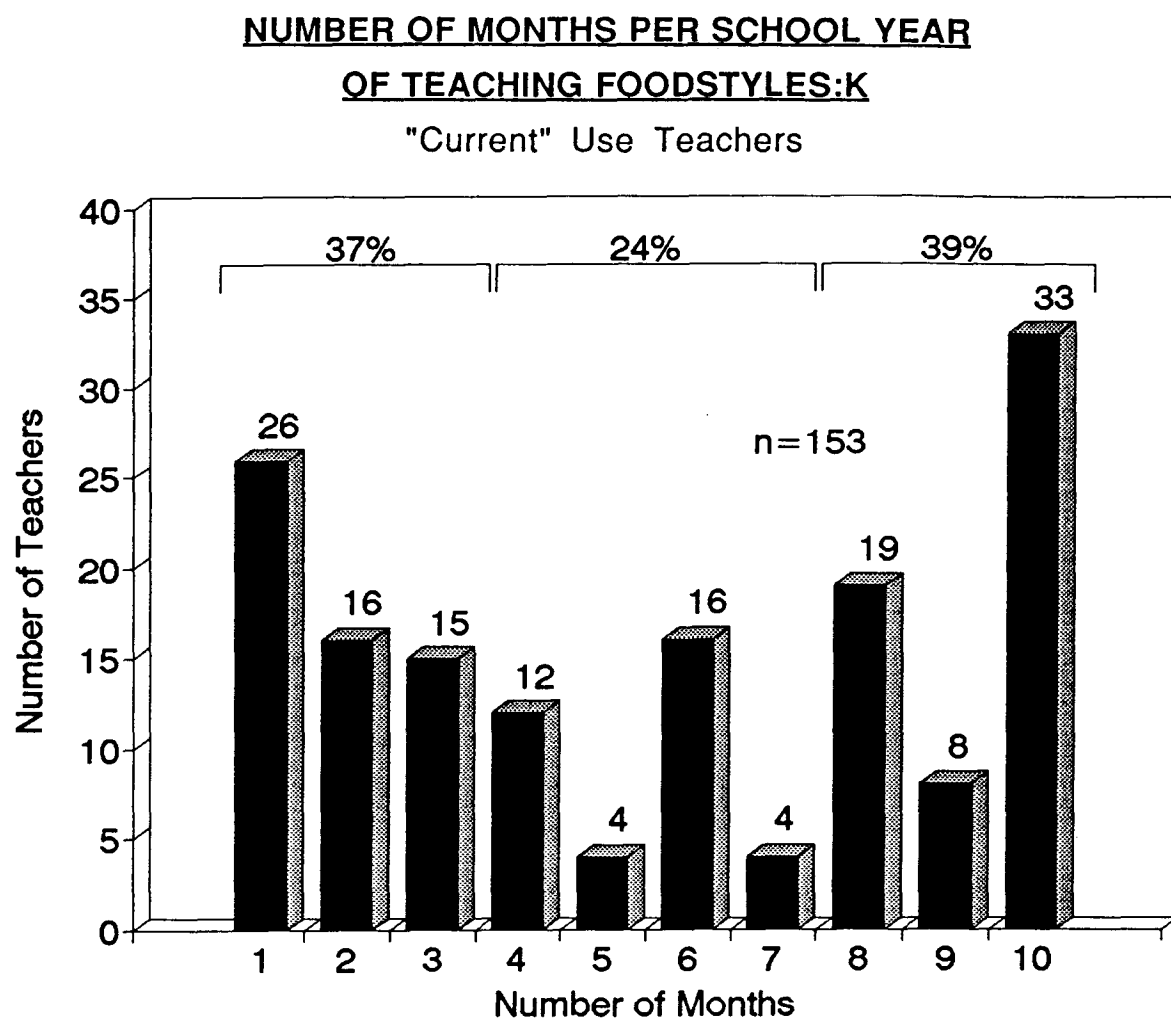


Figure 2. The Number of Months Per School Year that Teachers in the "Current" Use Group Reported Teaching Foodstyles:K.

A total of 165 teachers in the "current" use group (87%) reported the number of foods they introduced using Foodstyles:K in their classroom during the 1988-1989 school year. The number of foods introduced ranged from 1 to 24. The 3 most frequently reported number of foods introduced were:

1. 8 foods (n=32/165; 19%),
2. 10 foods (n=27/165; 16%), and
3. 6 foods (n=22/165; 13%).

Figure 3 provides a graphic account of the number of foods teachers in the "current" use group reported they introduced using Foodstyles:K during the 1988-1989 school year.

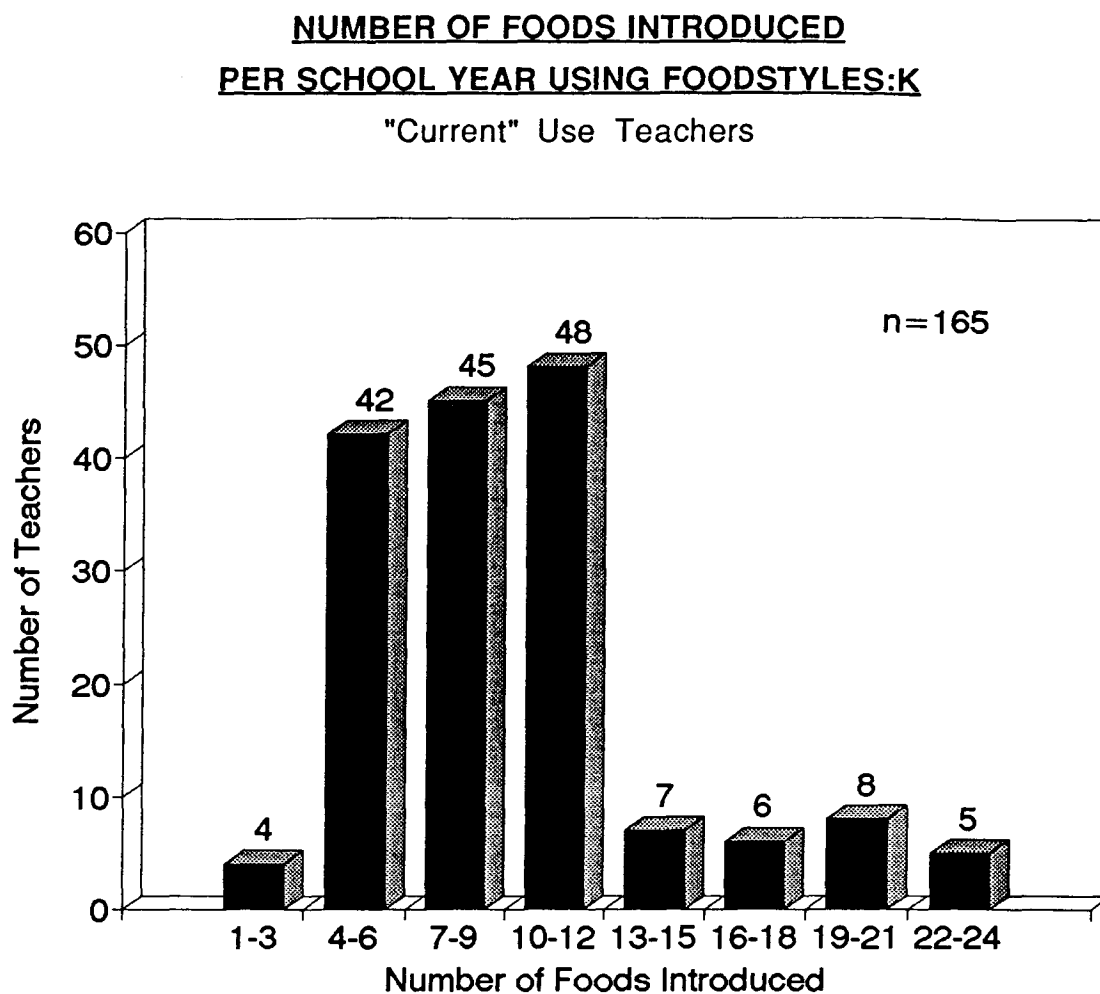


Figure 3. The Number of Foods Teachers in the "Current" Use Group Reported Introducing Using Foodstyles:K During the School Year.

A significant ($p < 0.0001$) inverse correlation was found between the number of months per school year for teaching Foodstyles:K and the times per month which it was taught with a Pearson product-moment correlation coefficient of $r = -0.572$.

No significant ($p < 0.05$) correlation was found between the number of months of teaching Foodstyles:K and the number of foods introduced using Foodstyles:K nor between the times per month of teaching Foodstyles:K and the number of foods introduced.

c.) Teacher Satisfaction with Foodstyles:K

Responses to 3 questionnaire items regarding teacher satisfaction with Foodstyles:K used a scale of 5 = "strongly agree"; 4 = "somewhat agree"; 3 = "neutral"; 2 = "somewhat disagree"; and, 1 = "strongly disagree." Of the 190 teachers in the "current" use group, 182 teachers (96%) indicated by a mean value of 4.7 that they "strongly agreed" the Foodstyles:K program was easy to teach. In response to the suggested minimum number of 8 introduced foods being sufficient to meet the program objectives, an average value of 4.2 was reported by 181 (96%) teachers indicating they "somewhat agreed" with this suggestion in the Teacher's Guide. Finally, 182 (96%) teachers in the "current" use group reported an average value of 4.6 in response to the item requesting teachers' perceptions as to whether they found they could easily meet the objectives of Foodstyles:K when teaching the program. The average value of 4.6 represents teacher agreement with this statement as roughly half way between "strongly agree" and "somewhat agree."

d.) The Three Most Relevant Core Activities

To address their perceptions of the 6 core activities of Foodstyles:K; "Mystery Foods", "Who Am I?", "Cooking", "Journals", "Stickers", and "Class Club" activities, 4 questions were asked of teachers in the "current" use group. They were asked to choose the 3 activities which they thought were most relevant to each question. This left 3 core activities which would be considered least relevant to each particular question. Of the 3 MOST relevant activities chosen, the teachers were asked to rank these 3 activities in the following manner:

1 = most relevant activity,

2 = 2nd most relevant of the 3 chosen activities,

3 = 3rd most relevant of the 3 chosen activities.

Table 13 represents percent frequencies of the 3 most relevant activities chosen for each question.

Table 13. Percent Frequencies of the Most Relevant Core Activities Reported by Teachers in the "Current" Use Group.

QUESTION	THREE MOST RELEVANT ACTIVITIES		
	HIGHEST FREQUENCY (%)	SECOND HIGHEST FREQUENCY (%)	THIRD HIGHEST FREQUENCY (%)
How important do you feel it is for the children to complete this activity in order to meet the objectives of Foodstyles:K?	COOKING (59)	"MYSTERY FOODS" (16)	STICKERS (13)
How effective do you feel this activity is towards stimulating the children's interest in foods?	COOKING (47)	"MYSTERY FOODS" (28)	STICKERS (14)
Which core activity do you most enjoy teaching?	COOKING (50)	"MYSTERY FOODS" (26)	STICKERS/ JOURNALS (6)/(6)
What is the children's favourite core activity?	COOKING (61)	STICKERS (15)	"MYSTERY FOODS" (14)

e.) Student Interest in Foodstyles:K

Again on a scale of 5 to 1, representing "very interested", "somewhat interested", "neutral", "somewhat disinterested", and "very disinterested", respectively, teachers were asked to rate students' interest in the Foodstyles:K program. The average value of the responses from 183 of 190 (96%) potential respondents was 4.7, indicating the students were "very interested" in the Foodstyles:K program.

f.) Use of Recipes

The next set of items in the teacher questionnaire addressed teacher's use of specific activities of the Foodstyles:K program. A total of 183 (96%) teachers responded to the question requesting information on the use of recipes provided in the Teacher's Guide for the cooking activity. Of these 183 teachers, 157 (86%) indicated they used the recipes provided for the core cooking activity in the Teacher's Guide, and 26 (14%) reported they did not use the provided recipes.

g.) Use of the "Look What I Tried!" Journal

In terms of using the journals titled, "Look What I Tried!", a total of 182 (96%) teachers in the "current" use group responded with 133 (73%) indicating they used the journals and 49 (27%) indicating they did not use this core activity. Of those indicating use of the journal activity, 106 (80%) teachers reported reordering the food picture pages from BCDF, while a further 25 (19%) teachers reported they did not reorder food pictures from BCDF. Two (1%) teachers who indicated use of the journal activity did not respond to the question of reordering food pictures. Thirteen of the 25 teachers who reported they did not reorder food pictures provided information about what they substituted for the food pictures when the students completed the journal activity. Six of these teachers described 2 types of substitutes they used. The most frequent

substitute for food picture pages was obtained by cutting food pictures out of magazines (n=8). This was followed in frequency by using grocery store flyers/posters (n=4), using hand drawn foods by either the teacher or the student (n=3), and using pictures from packages (n=2). Two teachers reported they used old food models.

h.) Use of "I Tried It!" Stickers

A total of 183 (96%) teachers in the "current" use group responded to the question of using "I Tried It" stickers when they taught Foodstyles:K. Of these teachers, 174 (95%) indicated they used the stickers while 9 (5%) chose not to use this activity. Seventy five percent (n=131) of the teachers who reported use of the stickers also indicated they reordered stickers from BCDF while 20% (n=34) reported they did not reorder stickers from BCDF. A further 5% (n=9) who indicated they used "I Tried It" stickers as a Foodstyles:K activity did not respond to the question of reordering supplies. Of the 34 teachers who did not reorder stickers, 5 described the materials they used as a substitute. Three of these teachers reported making their own stickers, one reported using "happy face" stickers and one teacher reported photocopying stickers for the students.

i.) Use of the Class Club Activity

A total of 183 (96%) teachers in the "current" use group responded to the question asking if they made use of the "I Tried It" Class Club activity. Of these teachers, 64% (n=117) reported they did not use this activity while 36% (n=66) reported use of the Class Club activity. All respondents who reported use of the Class Club activity were asked to categorically indicate the number of students who had returned their Class Club activity forms from home which indicated the students had tried

a new food outside the classroom. Four of the 66 teachers did not respond to the question requesting the approximate number of students participating in the Class Club activity.

1. Most children (16/62; 26%),
2. More than half the children (16/62; 26%),
3. Almost half the children (16/62; 26%), and
4. Very few or none of the children (14/62; 22%).

j.) Parental Support for Foodstyles:K

The final item on the teacher questionnaire asked for teachers' perceptions of the amount of parental support for this program. Ranked from 5 to 1 representing "very supportive," "somewhat supportive," "neutral," "somewhat non-supportive," and "non-supportive," respectively, the average value of 4.1 for 177 (93%) respondents indicated teachers felt parents were "somewhat supportive" of the Foodstyles:K program.

2. PHASE II - EVALUATION OF FOODSTYLES:K - PARENT AND STUDENT PARTICIPATION

A. PARENTAL PRETEST QUESTIONNAIRE

Randomization of the classes into either the control or intervention group resulted in six classes in the control group and seven classes in the intervention group. Overall, 217 packets containing a consent form, cover letter, questionnaire and return envelope were distributed to the students to take home to their parents. The parental pretest questionnaire was completed by parents of both control and intervention classes. A choice of "do" or "do not" give consent was available on the

consent form which constituted the first page of the pretest questionnaire. The number of students enrolled in all the participating classes totalled 217. Of this total; 188 pretest questionnaires were returned indicating consent was given for their child to participate in the evaluation, 4 indicated that consent was not given, and 25 did not return a questionnaire. The total number of returned questionnaires was 192 representing an overall return rate of 89%, with 90 in the control group and 102 in the intervention group. Of the 4 who did not give consent, 1 was in the control group and 3 were in the intervention group, and of the 25 who did not return the pretest questionnaire, 10 were in the control group and 15 were in the intervention group. Questionnaire data returned with a form indicating "no consent" were not used in the data analyses. Consequently, the number of students with parental consent to participate was 89 (89%) in the control group and 99 (85%) in the intervention group.

For the classes where parents returned their pretest questionnaire by mail directly to BCDF, a potential total return by mail of 33 pretest questionnaires in the control group and 57 in the intervention group was possible. The actual totals were 28 (85%) and 46 (81%), respectively.

For classes where the parents returned their pretest questionnaire directly to the teacher, a potential total return directly to the teacher of 67 pretest questionnaires in the control group and 60 in the intervention group was possible. The actual totals were 62 (92%) and 56 (93%), respectively. See Table 14.

Table 14. Response Rate for Parents Returning Their Pretest Questionnaires.

Class	Group*	Return by Mail or to Teacher†	Potential # of Returns	Actual # of Returns	% Response Rate
01	C	T	21	21	100
02	I	T	20	19	95
03	I	M	20	18	90
04	I	M	17	12	71
05	C	M	20	17	85
06	I	T	8	7	88
07	I	M	20	16	80
08	I	T	17	17	100
09	C	T	13	13	100
10	C	M	13	11	85
11	C	T	12	9	75
12	C	T	21	19	90
13	I	T	15	13	87

*I = Intervention group

*C = Control group

†M = Mail

†T = Teacher

Six of the 89 students in the control group who had parental permission to participate, did not do so. Four of these students were English as a Second Language (ESL) students who could not communicate fluently in English, and the other two students did not wish to participate. Eighty three students participated in the control group at pretest.

Eight of the 99 students in the intervention group who had parental permission to participate in the study, did not participate. Five of these students were absent at the initial interview session and at one further contact, 1 child had moved between the time the parental questionnaire with consent form was returned and the pretest interviews were conducted, 1 student did not wish to participate, and consent for 1 student was received one month after the pretest interviews had taken place. Ninety one students participated in the intervention group at pretest. A sum total of 175 students from both groups participated in pretest interviews.

I. Food-related Restrictive Conditions

However, parents were asked to provide information regarding 3 restrictive conditions which might affect their child's food choices. These food-related restrictive conditions included: 1.) food allergies, 2.) special dietary restrictions, and 3.) medical conditions that affect the child's food intake. This is the only case in the Results chapter where missing data was included for data analyses. This action was necessary since if parents did not provide any information regarding these conditions it could not be assumed that their child was free from any one or all of these restrictive food-related conditions.

a.) Food Allergies

Parents were asked to report any food allergies their child may have. Three parents in the control group and 6 parents in the intervention group indicated food allergies as the only condition applicable to their child.

b.) Special Dietary Restrictions

Eight parents in the control group and 2 in the intervention group indicated special dietary restrictions (eg. meat-free, milk-free, wheat-free diets and food restrictions due to religious practices), as the only condition applicable to their child. One parent in the control group did not respond to this condition alone but did respond to the questionnaire items pertaining to the other 2 conditions. Therefore, this record was considered the same as a positive response.

c.) Medical Conditions

In terms of only medical conditions (eg. phenylketonuria (PKU), diabetes) affecting food intake, 1 parent in the control group failed to indicate an answer to this condition but did indicate the other 2 conditions did not apply to her/his child. Because it could not be assumed that a medical condition did not apply to this child, this record was excluded from data analyses.

A combination of food allergies and special dietary restrictions was reported by 2 parents in the control group. One parent in the control group did not respond to the food allergies half of this combination of conditions but did indicate that special dietary restrictions were applicable to their child. One parent in the intervention group did not respond to these 2 conditions but did respond to the item pertaining to a medical condition. The only other combination reported by parents was one where all 3 conditions applied to their child. Two parents in the intervention

group indicated this was true for their children. One parent in each of the control and intervention groups did not respond to any of the the 3 questionnaire items.

Results from the data are presented in Table 15. Missing data or a positive response by parents to one or more of the above three conditions (food allergies, special dietary restrictions, and/or medical conditions) resulted in the parent's and the corresponding child's files being flagged. Neither the parent data nor the child data from flagged files were used in the statistical analyses. There were 17 children in the control group and 12 children in the intervention group who fit into at least one of the above categories. Special dietary restrictions accounted for the majority of the positive responses for students in the control group (11 out of 17). Food allergies was reported by parents with the greatest frequency for students in the intervention group (8 out of 12). The number of students without any of the above three conditions was 67 and 79 in the control and intervention groups, respectively.

Table 15. Table of Parental Responses Indicating Restrictive Food-related Conditions for Their Children.

CONDITION(S)	CONTROL GROUP	INTERVENTION GROUP
Food Allergies	3	6
Special Dietary Restrictions	9	2
Medical Conditions	1	-
Food Allergies & Special Dietary Restrictions	3	1
Food Allergies & Medical Conditions	-	-
Special Dietary Restrictions & Medical Conditions	-	-
Food Allergies & Special Dietary Restrictions & Medical Conditions	1	3
TOTAL	17	12

In addition, both parent and student data which were complete at pretest but incomplete at posttest were excluded from the data analyses. Reasons for deletion of 10 records in the control group were attributable to 6 students being absent during 2 visits by the research team to their classroom and to 4 parents who did not return their questionnaire following the teacher's request to do so. Reasons for deletion of 12 records in the intervention group were attributable to 6 students being absent during 2 visits by the research team to their classroom and to 6 parents who did not return their questionnaire following the teacher's request to do so.

As a result of these deletions, a final tally of 56 and 67 records in the control and intervention groups, respectively, were used in the data analyses for Phase II. From the initial to the final

sample size, there was a 44% loss of potential study participants in the control group and a 43% loss in the intervention group. Figure 4 provides an overview of the places where a loss of potential study participants occurred.

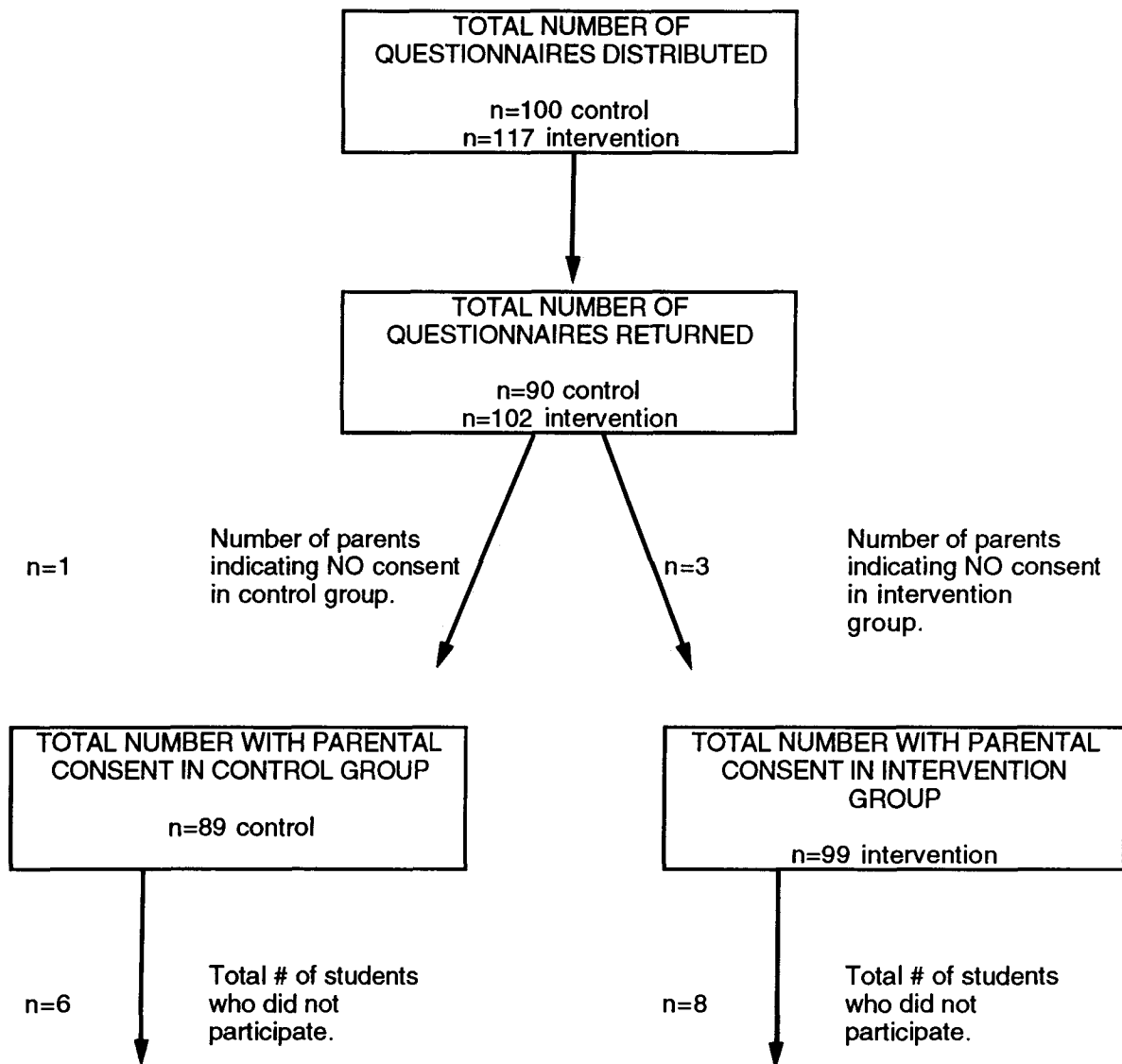


Figure 4. Flow Chart of the Steps Where Loss of Potential Study Participants Occurred.

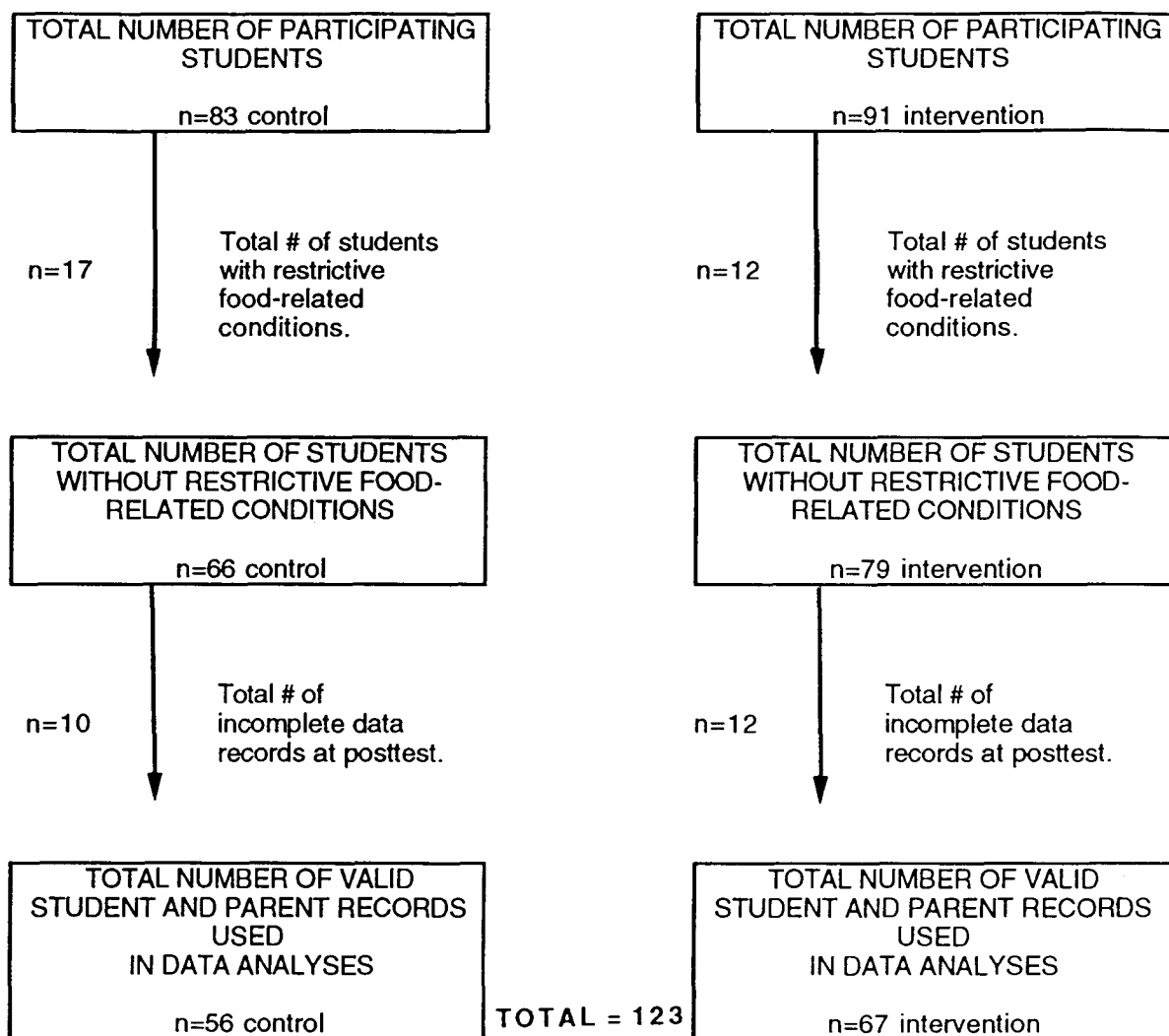


Figure 4. (cont'd.) Flow Chart of the Steps Where Loss of Potential Study Participants Occurred.

II. Age and Gender Distributions

At pretest, the control group data consisted of 25 male and 31 female students. Of the 25 boys, 24 were 5 years old and 1 was 6 years old. Of the 31 girls, all were 5 years old. There were 38 male and 29 female students without any restrictive food-related conditions who participated in the intervention group. Of the 38 boys, 2 were 4 years old at pretest and 36 were 5 years old. Of the 29 girls at pretest, 2 were 4 years old, and 27 were 5 years old.

Overall, at pretest the mean (\pm S.D.) age of 56 students in the control group was 5.0 (± 0.2) years and the mean age of 67 students in the intervention group was 5.0 (± 0.2) years. The mean age of the 31 girls in the control group at pretest was 5.0 (± 0.2) years and the mean age of the 25 boys was 5.1 (± 0.2) years. In the intervention group, the mean age of the 29 girls was 5.0 (± 0.2) years and the mean age of the 38 boys was 5.0 (± 0.2) years.

III. Sibling Distributions

Of the 56 students in the control group, 50 parents indicated at pretest their kindergarten child had siblings and 6 parents indicated their child did not have siblings. In terms of older siblings, 21 students had only 1 older sibling, 7 had 2 older siblings and no younger siblings, 1 had 3 older siblings and no younger siblings, and 1 had 4 older siblings with no younger siblings. In terms of younger siblings 12 children had only 1 younger sibling. Four students in the control group had 1 older and 1 younger sibling; 1 student had 1 older and 2 younger siblings; and, 3 students had 2 older and 1 younger siblings.

Of the 67 students in the intervention group, 60 parents indicated at pretest their kindergarten child had siblings, 6 parents indicated their child did not have siblings, and 1 parent did not

respond to this questionnaire item. In terms of older siblings, 19 students had 1 older sibling and no younger siblings, 9 had 2 older siblings only, and 2 had 3 older siblings with no younger siblings. In terms of younger siblings, 17 children had 1 younger sibling only and 3 children had 2 younger siblings but no older siblings. Seven students in the intervention group had 1 older and 1 younger sibling; 2 students had 2 older and 1 younger sibling; and, 1 student had 2 older and 2 younger siblings. A summary of these results is presented in Table 16.

Table 16. Summary of Sibling Distribution Data Provided by Parents at Pretest.

NUMBER OF OLDER & YOUNGER SIBLINGS		CONTROL	INTERVENTION
OLDER	YOUNGER	GROUP	GROUP
none	none	6	6
one	none	21	19
none	one	12	17
one	one	4	7
two	none	7	9
none	two	-	3
one	two	1	-
two	one	3	2
two	two	-	1
three	none	1	2
four	none	1	-
TOTAL		56	66

IV. Previous Daycare Attendance

Of the 56 students in the control group, 29 (52%) had previously attended daycare while 27 (48%) had not. One parent did not respond to this questionnaire item. In the intervention group, 42 (63%) students had previously attended daycare and 25 (37%) had not.

V. Parental Awareness of Nutrition Education at Daycare

In terms of parental awareness of any nutrition information being introduced to their child at daycare, 16 of the 29 (55%) parents in the control group who reported their child attended daycare also reported they were aware of their child being exposed to some form of nutrition information at daycare. Thirteen parents (45%) reported they were unaware of any nutrition information introduced at daycare. In the intervention group, 28 of the 42 parents (67%) who reported their child attended daycare also reported they were aware of their child being exposed to some form of nutrition information at daycare. Fourteen parents (33%) reported they were unaware of any nutrition information introduced at daycare.

VI. Cultural Heritage

In the control group, ten parents did not provide information regarding their child's cultural heritage. Of the 46 respondents, 27 parents (59%) indicated their children had a Canadian/British/English cultural heritage while 19 parents (41%) reported their children had a cultural heritage "Other" than Canadian/British/English.

In the intervention group, thirteen parents did not provide information regarding their child's cultural heritage. Of the 54 respondents, 45 parents (83%) indicated their children had a Canadian/British/English cultural heritage while 9 parents (17%) reported their children had a

cultural heritage "Other" than Canadian/British/English. Tables 17 and 18 provide a detailed account of the study group breakdown for the children's cultural heritage as reported by their parents.

Table 17. Detailed Account of Students with a Canadian/British/English Cultural Heritage as Reported by Their Parents.

CULTURAL HERITAGE	CONTROL GROUP	INTERVENTION GROUP
CANADIAN	25	30
ENGLISH	-	8
CANADIAN/AMERICAN	1	-
CANADIAN/DUTCH	-	1
CANADIAN/FILIPINO	-	1
CANADIAN/SCOTTISH	1	-
CANADIAN/UKRAINIAN	-	1
FRENCH CANADIAN/DANISH/ENGLISH	-	1
ENGLISH/DUTCH	-	2
ENGLISH/IRISH	-	1
TOTAL: CANADIAN/BRITISH/ENGLISH	27	45

Table 18. Detailed Account of Students with a Cultural Heritage "Other" than Canadian/British/English as Reported by Their Parents.

CULTURAL HERITAGE	CONTROL GROUP	INTERVENTION GROUP
CHINESE	9	2
EAST INDIAN	3	1
CHINESE/FILIPINO	1	-
CROATIAN/POLISH	-	1
DUTCH	1	-
FILIPINO	1	-
FINNISH	-	1
GERMAN	1	-
ITALIAN	-	1
JAPANESE	1	-
LAOTIAN/CHINESE/THAI	-	1
POLISH	1	-
POLISH/ENGLISH/SPANISH	-	1
UKRAINIAN	1	1
TOTAL: "OTHER"	19	9

Chi-square analysis of the demographic variables (Table 19) showed no significant differences ($p < 0.05$) between groups in sex, age, sibling distribution, attendance at daycare, or parental awareness of nutrition education at daycare. The one demographic variable where a significant difference existed between the 2 study groups was cultural heritage. All reports of Canadian, British, and/or English cultural heritage were clustered to form one measure of this variable and all reports of cultural heritage "Other" than Canadian/British/English were clustered to form the other measure of this variable. The proportion of students with a cultural heritage "Other" than Canadian/British/English was significantly greater ($p = 0.01$) in the control group than in the intervention group.

Table 19. Demographic Variables by Study Group.

DEMOGRAPHIC VARIABLE	CONTROL GROUP	INTERVENTION GROUP
SEX: MALE: #, (%)	25 (45)	38 (57)
FEMALE: #, (%)	31 (55)	29 (43)
AGE: Mean \pm S.D.	5.0 \pm 0.2	5.0 \pm 0.2
SIBLINGS: TOTAL: #, (%)	50 (89)	60 (90)
OLDER: Mean \pm S.D.	1.4 \pm 0.7	1.4 \pm 0.6
YOUNGER: Mean \pm S.D.	1.0 \pm 0.2	1.1 \pm 0.3
DAYCARE: #, (%)	29 (52)	42 (63)
NUTRITION at DAYCARE: #, (%)	16 (55)	29 (69)
CULTURAL HERITAGE: #, (%)		
CANADIAN/BRITISH/ENGLISH:	27 (59)†	45 (81)†
"OTHER":	19 (41)†	9 (19)†

† = Chi-square analysis revealed a significant difference between groups at $p=0.01$.

B. PARENTAL PRETEST AND POSTTEST QUESTIONNAIRES

Parents overall ranking of their child's willingness to eat a wide variety of foods and to eat unfamiliar foods did not change significantly ($p>0.05$) from pretest to posttest for either group, as determined by a Wilcoxon comparison of the rank sums. Also, the rank sums obtained from parents describing their child's willingness to eat a *variety* of foods and their child's willingness to eat *unfamiliar* foods were similar and did not differ significantly ($p>0.05$) between groups at pretest, nor at posttest.

Table 20. Parent's Ranking of their Child's Willingness to Eat a Variety of Foods and to Eat Unfamiliar Foods.

QUESTIONNAIRE ITEM	PRETEST		POSTTEST	
	N	MEAN (\pm S.D.)	N	MEAN (\pm S.D.)
Parental reports of their child's willingness to eat a VARIETY of foods.				
CONTROL GROUP	56	3.6 \pm 1.1	54	3.8 \pm 1.1
INTERVENTION GROUP	66	3.7 \pm 1.1	67	3.8 \pm 1.2
Parental reports of their child's willingness to eat UNFAMILIAR foods.				
CONTROL GROUP	54	3.0 \pm 1.1	55	3.1 \pm 1.2
INTERVENTION GROUP	66	3.1 \pm 1.0	67	3.3 \pm 1.1

C. PARENTAL POSTTEST QUESTIONNAIRE

At posttest, parents were asked to indicate any food(s) that their child had requested over the school year as a result of exposure to the food(s) at school. In the control group, 14 parents (25%) reported when their child requested food(s), that s/he had mentioned her/his exposure to the food(s) at school. Twelve of these parents reported the food(s) requested and 2 did not report the food(s). Forty one parents (73%) indicated their child had not mentioned exposure to food(s) at school and 1 parent in the control group did not respond to this questionnaire item.

In the intervention group, 39 parents (59%) reported their children had mentioned exposure at school to the food(s) s/he requested. Of these 39 parents, 34 reported the food(s) requested while 5 did not. Twenty seven parents (41%) indicated no mention by their child of food(s) exposure at school when s/he requested food(s). One parent in the intervention group did not respond to this questionnaire item.

Chi square analysis revealed a significant difference ($p=0.0003$) between groups for the number of foods children had mentioned being exposed to at school when they requested a food. When analyzed by study group, the percentage of test foods from the total number of foods requested was 19% and 51% for the control and intervention groups, respectively. Appendices 18 and 19 provide a list of the foods reported by the parents of students in each study group.

Also at posttest, parents were asked to describe any changes they may have noticed in their child's food habits over the school year. Twenty three parents (41%) in the control group reported the change(s) in their child's food habits while 33 parents (59%) reported no observable change(s).

In the intervention group, 32 parents (48%) reported a noticeable change in their child's food habits over the school year and 35 parents (52%) reported no observable change in their child's food habits. No significant difference existed between the groups. The noticeable changes in childrens' food habits over the course of the school year as reported by their parents are presented in Appendices 20 and 21.

D. STUDENT FAMILIARITY DATA - PRETEST AND POSTTEST

With both study groups combined, the student's familiarity with the 16 test foods, increased significantly ($p<.0001$) from 7.7 foods at pretest to 9.1 foods at posttest. See Table 21.

In comparing the two study groups, no significant difference was determined between groups at pretest and at posttest for either introduced or non-introduced foods.

Table 21. Table of Student's Familiarity with all 16 Test Foods.

CONTROL & INTERVENTION GROUPS COMBINED	RESPONSE	PRETEST		POSTTEST	
		N	MEAN # of FOODS (\pm S.D.)	N	MEAN # of FOODS (\pm S.D.)
Student's familiarity with all 16 test foods.	Familiar	123	7.7 \pm 2.0**	123	9.1 \pm 2.0**

** $p<.0001$

When analyzed by study group, results from students in the control group indicated a significant increase in their familiarity with both introduced ($p<.01$) and non-introduced foods ($p<.05$) from pretest to posttest. A significant difference ($p<.0001$) existed in the control group at pretest between the introduced and non-introduced foods, with students in this study group indicating they were more familiar with the non-introduced foods. This trend was also observed at posttest at the same p level. See Table 22.

In the intervention group, a significant increase in student's familiarity with the introduced foods ($p<.0001$) was noted between pretest and posttest, but this did not appear with the non-introduced foods. A significant difference existed in the intervention group between the introduced and non-introduced foods, with students in this study group indicating they were more familiar with the non-introduced foods than with the introduced foods at both pretest ($p<.0001$) and posttest ($p<.0001$). See Table 22.

Table 22. Table of Student's Familiarity with Introduced and Non-introduced Foods.

INTRODUCED FOODS (n=8)					
GROUP	RESPONSE	PRETEST		POSTTEST	
		N	MEAN # of FOODS (\pm S.D.)	N	MEAN # of FOODS (\pm S.D.)
CONTROL	Familiarity	56	2.8 ± 1.3^{ae}	56	3.7 ± 1.4^{ce}
INTERVENTION	Familiarity	67	2.9 ± 1.2^{bg}	67	4.0 ± 1.2^{dg}
NON-INTRODUCED FOODS (n=8)					
GROUP	RESPONSE	PRETEST		POSTTEST	
		N	MEAN # of FOODS (\pm S.D.)	N	MEAN # of FOODS (\pm S.D.)
CONTROL	Familiarity	56	4.8 ± 1.2^{af}	56	5.2 ± 1.0^{cf}
INTERVENTION	Familiarity	67	5.0 ± 1.0^b	67	5.2 ± 1.1^d

p<.05 ^fp<.01 ^e

p<.0001 a,b,c,d,g

Means sharing a common superscript letter are significantly different at the noted p level.

E. STUDENT AND PARENT WILLINGNESS DATA - PRETEST AND POSTTEST**I. Student Willingness**

With both groups combined, the student's willingness to eat an average 11.4 of the 16 test foods did not change from pretest to posttest. See Table 23.

In comparing the 2 study groups, no significant difference was determined between groups at pretest and at posttest for either introduced or non-introduced foods.

When analyzing by each study group, in the control group, there were no significant differences in the student's willingness to eat the test foods. In the intervention group, a significant difference existed between the introduced and non-introduced foods, with students in this study group indicating they were more willing to eat the non-introduced foods than the introduced foods at both pretest ($p < .05$) and posttest ($p < .05$). No significant difference was noted in the intervention group for students' willingness to eat either introduced or non-introduced foods between pretest and posttest. See Table 23.

II. Parents' Perceptions of Their Child's Willingness to Eat the Test Foods

With both groups combined, parents' perceptions of their child's willingness to eat the 16 test foods did not change significantly from 10.4 foods at pretest to 10.5 foods at posttest. See Table 23.

Table 23. Table of Student's Willingness to Eat the 16 Test Foods and Parents' Perceptions of Their Children's Willingness to Eat the Test Foods.

GROUP: STUDENT OR PARENT	RESPONSE	PRETEST		POSTTEST	
		N	MEAN # of FOODS (\pm S.D.)	N	MEAN # of FOODS (\pm S.D.)
Student's willingness to eat all 16 test foods.	Willing	123	11.4 \pm 3.9	123	11.4 \pm 3.5
Parent's perceptions of their child's willingness to eat all 16 test foods.	Willing	123	10.4 \pm 2.7	123	10.5 \pm 2.6

In comparing parental perceptions for the 2 study groups, no significant difference was determined between groups at pretest and at posttest for either introduced or non-introduced foods. When analyzing by each study group, there were no significant results to report for parents' perceptions of their child's willingness to eat the test foods. See Table 24.

Table 24. Table of Student's Willingness to Eat the 16 Test Foods and Parents' Perceptions of Their Child's Willingness to Eat the 16 Test Foods.

INTRODUCED FOODS (n=8)					
GROUP	WILLINGNESS RESPONSE	PRETEST		POSTTEST	
		N	MEAN # of FOODS (± S.D.)	N	MEAN # of FOODS (± S.D.)
CONTROL	Student	56	5.4 ± 2.1	56	5.1 ± 2.3
	Parent	56	5.0 ± 1.8	56	5.2 ± 1.7
INTERVENTION	Student	67	5.5 ± 2.2 ^{a,d}	67	5.6 ± 1.7 ^{b,e}
	Parent	67	5.0 ± 1.5 ^d	67	5.1 ± 1.6 ^e

NON-INTRODUCED FOODS (n=8)					
GROUP	WILLINGNESS RESPONSE	PRETEST		POSTTEST	
		N	MEAN # of FOODS (± S.D.)	N	MEAN # of FOODS (± S.D.)
CONTROL	Student	56	5.6 ± 2.3	56	5.8 ± 1.9 ^c
	Parent	56	5.4 ± 1.5	56	5.3 ± 1.3 ^c
INTERVENTION	Student	67	6.2 ± 1.5 ^{a,f}	67	6.3 ± 1.4 ^{b,g}
	Parent	67	5.4 ± 1.4 ^f	67	5.4 ± 1.4 ^g

p<.05 ^{a,b,c,d,e}

p<.0001 ^{f,g}

Means sharing a common superscript letter are significantly different at the noted p level.

III. Parents' Perceptions of Their Child's Willingness to Eat the Test Foods Compared with Their Child's Actual Response

When analyzed by group, significant differences existed between parents' perceptions of their child's willingness to eat the test foods compared with their child's responses in the intervention group. For introduced foods at pretest ($p<.05$) and at posttest ($p<.05$), and for non-introduced foods at pretest ($p<.0001$) and posttest ($p<.0001$), the children consistently indicated they were willing to eat a significantly greater number of foods than perceived by their parents. See Table 24.

For the control group, a significant difference ($p<.05$) between parent and student responses existed at posttest for non-introduced foods only, with the children indicating they were willing to eat a significantly greater number of foods than perceived by their parents. No significant differences existed at posttest for introduced foods or at pretest for either food category.

F. PARENT/STUDENT MATCHING DATA

Chi-square analysis of frequency counts for percent agreement of the simple main effects including; study group (control and intervention), time (pretest and posttest), and food category (introduced and non-introduced), and all possible interactions revealed statistical differences for group ($p<0.01$) and food category ($p<.0001$), but not for time or any interactions. There was significantly greater agreement between parents and their children in the intervention group compared with the control group and, there was significantly greater agreement between parents and their children for the non-introduced foods compared with the introduced foods. See Table 25.

Table 25. Percent Agreement Between Parents' Perceptions of Their Child's Willingness to Eat the 16 Test Foods and the Children's Responses.

INTRODUCED FOODS (n=8)			
GROUP	RESPONSE	PRETEST AGREEMENT (%)	POSTTEST AGREEMENT (%)
CONTROL	Agreement	67.3 ^a	69.0
INTERVENTION	Agreement	66.7 ^{b,c}	74.0 ^{b,d}

NON-INTRODUCED FOODS (n=8)			
GROUP	RESPONSE	PRETEST AGREEMENT (%)	POSTTEST AGREEMENT (%)
CONTROL	Agreement	75.2 ^a	73.0 ^e
INTERVENTION	Agreement	80.8 ^c	81.2 ^{d,e}

p<.05 ^{a,b}

p<.01 ^{d,e}

p<.0001 ^c

Percentages sharing a common superscript letter are significantly different at the noted p level.

The overall agreement between parents' perceptions of their child's willingness to eat the test foods and their child's response was 73.4%. At pretest, with both groups combined, the agreement between parents and their children for all 16 foods was 72.5%, representing 67.0% for introduced foods and 78.0% for non-introduced foods. At posttest, with both groups combined, the overall agreement between parents and their children for the 16 foods was 74.3%, representing 71.5% for introduced foods and 77.1% for non-introduced foods.

The percent agreement between parents and children at pretest for the control group was significantly greater ($p < .05$) for the non-introduced foods than the introduced foods. This was also observed for the intervention group at pretest ($p < .0001$), and additionally at posttest ($p < .01$). No significant difference was discovered at posttest for the control group.

A significant difference ($p < .05$) in percent agreement from pretest to posttest was observed for introduced foods in the intervention group, with a greater agreement between parents and their children found at posttest.

The only significant difference between study groups was found at posttest with the non-introduced foods with the percent agreement between parents and their children significantly greater ($p < .01$) for the intervention group compared with the control group.

G. SUMMARY OF RESULTS WITH REFERENCE TO THE STUDY HYPOTHESES**PRIMARY HYPOTHESES****Question 1:**

There will be no significant difference between children exposed to Foodstyles:K during their kindergarten year compared with children not exposed to Foodstyles:K during their kindergarten year, in terms of the children's stated recognition of a variety of selected foods.

This null hypothesis was generally confirmed by results from the study. A significant increase in students' familiarity with the introduced foods was observed for both the intervention group ($p < .0001$) and the control group ($p < .01$) over the school year. However, familiarity with the non-introduced foods by students in the control group also increased significantly ($p < .05$) while that of the intervention group did not.

Question 2:

There will be no significant difference between children exposed to Foodstyles:K during their kindergarten year compared with children not exposed to Foodstyles:K during their kindergarten year, in terms of their food behaviour towards a variety of selected foods, as measured by their stated willingness to eat these foods.

This null hypothesis was confirmed by results from the study. Students' stated willingness to eat both the introduced and non-introduced foods did not change in either study group over the course of the school year. This was an unanticipated finding as one objective of the program is for

the students to build positive feelings about trying new foods through their experiences with the program activities. This also somewhat contradicts teachers' reports that the students were "very interested" in the program.

SECONDARY HYPOTHESES

Question 3:

There will be no significant difference in the identification of a variety of selected foods near the start versus near the end of the school year for kindergarten children not exposed to the subject of nutrition during their kindergarten school year.

An unanticipated finding of this study was revealed for students in the control group. A significant increase in their familiarity with both introduced ($p < .0001$) and non-introduced foods ($p < .01$) from pretest to posttest was observed. A suggested explanation for this result may simply be the natural maturational development of kindergarten-aged children over the course of a school year.

Question 4:

There will be no significant difference in the stated willingness to eat a variety of selected foods near the start versus near the end of their school year for kindergarten children not exposed to the subject of nutrition during their kindergarten school year.

This null hypothesis was confirmed by results from the study. Stated willingness to eat both the introduced and non-introduced foods did not change over the course of the school year for students in the control group.

Question 5:

There will be no significant difference in parents' perceptions of their kindergarten child's willingness to eat a variety of foods over the course of the school year.

This null hypothesis was confirmed with no significant change noted for parents in either study group in terms of their perceptions of their child's willingness to eat a variety of foods over the course of the school year.

Question 6:

There will be no significant difference in parents' perceptions of their kindergarten child's willingness to eat unfamiliar foods over the course of the school year.

This null hypothesis was confirmed with no significant change noted for parents' perceptions of their child's willingness to eat unfamiliar foods in either study group over the course of the school year.

Question 7:

For a variety of selected foods, there will be no significant difference between the parents' perceptions of their child's willingness to eat the foods, and their child's stated willingness to eat the same foods.

Results from the study indicated a significant difference existed at both pretest ($p < .0001$) and posttest ($p < .0001$) in the intervention group between parents' perceptions of their child's

willingness to eat the introduced foods and their child's stated willingness to eat these foods. Similar results were obtained for the non-introduced foods at both pretest ($p < .05$) and posttest ($p < .05$). For the control group, parents and their children's responses generally were similar, with the only significant difference appearing at posttest with non-introduced foods ($p < .05$).

CHAPTER V

DISCUSSION

1. INTRODUCTION

For the purpose of discussion, major findings of the descriptive results from Phase I - Teachers' Perceptions of Foodstyles:K will be commented on first, followed by a discussion of the major findings from Phase II - Evaluation of Foodstyles:K - Student and Parent Participation. For Phase II, results from the parental questionnaire data will be discussed followed by results from the student data. Finally, to conclude this chapter, the degree of agreement between the parent's and their corresponding child's results in reference to the children's willingness to eat the 16 test foods will be discussed.

2. PHASE I - TEACHERS' PERCEPTIONS

Distribution of the teacher questionnaire took place in Spring 1990 and was limited to all British Columbia kindergarten (P-1) teachers who had attended a Foodstyles:K workshop between June 1987 and June 1989. Some questionnaire items pertained to use of the program over the course of a full school year. Therefore, the potential existed for bias from inaccurate or missing data if distribution of the teacher questionnaire had reached teachers who had attended a Foodstyles:K workshop later than June 1989 (ie. during Fall 1989 or Winter 1990).

As each school year draws to a close, there are increased demands on teacher's time for such events as field trips, sports day, school fairs, recognition ceremonies, thank you events for parents, and the preparation of report cards. The initial distribution of the teacher questionnaire packet occurred in the first week of May 1990, and it was anticipated that teachers could afford time at this point in the school year to complete the questionnaire and return it in the self-addressed, stamped envelope supplied in their questionnaire packet. However, prior to the scheduled time for distribution of an updated packet to all non-respondents, only 219 out of 845 teachers (26%) had completed and returned their questionnaires. Six hundred and ten packets were mailed to non-respondents on June 4 1990. By the conclusion of the school year, 404 teacher questionnaires had been returned representing an overall response rate of 49% from a total of 823 questionnaires that were delivered or forwarded to the correct address. While this response rate indicated half the teachers who had taken a Foodstyles:K workshop did not wish to participate in the evaluation, it did, however, represent almost double the response rate reported by Berenbaum (1986). In evaluating a similar program during the Spring of 1985 in Ontario, titled "Good Beginnings: A Nutrition Education Program for Preschoolers," Berenbaum achieved a 25% response rate from a total of 1247 early childhood educators who had attended a workshop for the program within the previous 2 years, using a single questionnaire mailout and one follow up letter 2 weeks later. In an evaluation study of teacher involvement in the "Nutrition at School" program in Alberta, McEwen and Kieren (1984) achieved a response rate of 55% from a province-wide mail survey to a random 500 K-6 teachers. These authors reported a single questionnaire was sent but provided no details regarding follow up.

Response rate is effectively increased through follow up contacts with the number of contacts being the best predictor of the final response rate (Lockhart, 1984). In the present study, a maximum of 4 contacts resulted in a 49% overall teacher response rate for the evaluation of Foodstyles:K. This seems reasonable given the constraints of time and resources. The timing of data collection may also have had implications for the response rate. Data collection during less demanding months of the school year such as February, March, and/or April may have enhanced the number of responses. However, it was necessary to approach the teachers during Spring 1990. This permitted distribution of an invitation to teachers in the Lower Mainland to participate in Phase II - Evaluation of Foodstyles:K - Student and Parent Participation, scheduled to commence in September 1990.

A. USE

The results indicated that approximately 3/4 of all teachers who had attended a Foodstyles:K workshop taught at least some aspect of the Foodstyles:K program to their students following attendance at the workshop. It appears that during the school year, close to one half of the teachers who had previously attended a Foodstyles:K workshop could be found teaching at least one Foodstyles:K activity in their classrooms.

I. "Past but not Present" Use Teacher Group

Teachers who had previously taught Foodstyles:K, but indicated they no longer did so represented the second largest use group in the study; larger than the "never" use group, and smaller than the "current" use group.

Demands on teacher's time appear to have the greatest influence for discontinued use of Foodstyles:K. "Not teaching kindergarten" was cited most frequently, and "teaching plans already established" for the school year and "general time restrictions" appeared to be of concern to the teachers. The demands on teacher's time was of such great concern that teachers would forego teaching Foodstyles:K for the school year, when in the past, they would have taught the program to their students. Several teachers indicated that the demands of the new primary program in British Columbia elementary schools had strained both their teaching and non-teaching time such that activities like Foodstyles:K were deferred. This is not a reflection of the program but rather of extenuating circumstances that have altered their planning.

Although this group of teachers no longer used Foodstyles:K in the classroom, 1 out of every 5 of these teachers voluntarily reported that they perceived the program as "good", "excellent" or "terrific." These voluntary comments represent a true reflection of the teachers feelings in their own words, and as such they are a valuable addition to the qualitative component of Phase I.

II. "Never" Use Teacher Group

Very few of the teachers in the "never" use group reported that they made their decision not to teach the program while attending the workshop. This suggests that for most teachers, the focus, content and duration of the workshop did not appear to be a deterrent to teaching the program.

The majority of teachers in the "never" use group who cited "not teaching kindergarten" as their primary reason for never teaching Foodstyles:K indicated they had a reassignment of their

teaching position from kindergarten (P-1) to a different primary level (eg. P-2, P-3, P-4). Reassignment is not a reflection of the Foodstyles:K program itself and is influenced by circumstances beyond the control of the teacher. However, it should be noted that approximately 10% of teachers in the "never" use group reported no longer teaching kindergarten, and of these teachers almost 20% reported teaching grade 1 (P-2) while attending the workshop. To reduce the number of teachers in the "never" use group, it may be advisable to ensure that all teachers who attend a Foodstyles:K workshop are indeed teaching kindergarten.

"Classroom time restrictions" and "teaching plans already established" also created a deterrent for implementation of Foodstyles:K in the classroom. Given the demands on teacher's time by current changes in the British Columbia public school system, it is not surprising to find that time was a major impedance to incorporating Foodstyles:K into classroom activities, and not the program itself.

When both the "never" and "past but not present" use groups were combined, 67 teachers (32 in the "never" use group, 35 in the "past but not present" use group) from a total of 404 teachers indicated they no longer taught kindergarten. These data represent an approximate annual turnover rate of 17% for all kindergarten teachers in British Columbia. Generally, the annual kindergarten teacher turnover rate is not tracked in British Columbia school districts, however, a consultant in Maple Ridge School District (a school district in the study), indicated an annual kindergarten teacher turnover rate of less than 10% (Newson (personal communication), 1992) would be likely for that school district. This survey included teachers from across the province in both large metropolitan areas and smaller rural centres. The high turnover rate calculated in this study may be a result of teachers staying in the smaller centres for only a few years and then

moving into the metropolitan areas. Given this high flux of teachers at the kindergarten (P-1) level, a recommendation suggesting that all kindergarten teachers teach kindergarten for at least one full year prior to attendance at a Foodstyles:K workshop may potentially reduce the number of non-users of the program. Teachers in their first year of teaching kindergarten are often enthusiastic, however, in accordance with the factors reported by experienced teachers in both the "never" and "past but not present" use groups, they are likely to have their teaching plans established for the year. Results from teachers in these 2 groups suggest that teachers who attend a Foodstyles:K workshop are unlikely to modify their teaching plans within that year to accommodate the program into their classroom activities.

Time restrictions appeared to be the primary factor that inhibited teacher's use of the program. McEwen and Kieren (1984) reported the same finding in their evaluation of teacher involvement in the "Nutrition at School" program in Alberta. Together, responses to both the open-ended and closed questions provide a comprehensive acumen for discontinued use and non-use of the Foodstyles:K program.

III. "Current" Use Teacher Group

Almost half of all study respondents (47%) who attended a Foodstyles:K workshop allotted time in their teaching plans to teach the program. This moderate result is similar to results from evaluations of nutrition education programs offered by provincial marketing boards in British Columbia (Schwartz and Clampett, 1983), Alberta (McEwen and Kieren, 1984), and in Ontario (Health and Welfare Canada, 1990). The reported methods of incorporating Foodstyles:K into

teaching plans differed widely and the selection of core activities also differed. This variety of approaches to teaching Foodstyles:K reflects the very flexible nature of the program.

An established routine is important for young children to develop appropriate behaviours and to learn life skills. At the same time, young learners also require a variety of new experiences to build and expand upon their understanding of the world around them (Province of British Columbia, 1985). It is, therefore, necessary for activities in the classroom to be flexible enough to accommodate a wide range of teaching conditions found in classrooms. As some teachers in the "current" use group reported, often a core activity (eg. Class Club or Journals) was omitted from teaching the complete Foodstyles:K program. Reasons for the omissions often were not provided, however, positive comments about the program often were noted in the open space on the questionnaire. The voluntary reporting of these comments indicated that teachers felt there was substantial strength in the Foodstyles:K program without certain core activities, to warrant incorporation of the remainder of the program into their teaching plans.

a.) Method of Teaching Foodstyles:K

Two thirds of the teachers in the "current" use group reported using a single method of teaching Foodstyles:K while the other third indicated use of multiple methods to teach Foodstyles:K. Again, this reflects the suitability of the program to a wide variety of teaching conditions. By incorporating Foodstyles:K into some classroom activities, teachers had the greatest flexibility as activities relevant to the food introduced would be necessary at only one or a couple of activity centres in the classroom. This would require less organizational time on the part of the teacher compared with incorporating Foodstyles:K into all classroom activities.

However, a major benefit of incorporating Foodstyles:K into all classroom activities, is that the children could more thoroughly familiarize themselves with the food through a wider range of experiences and exploration from their own perspectives. For example, if a child played at the dramatic play centre and created an imaginative role for the food (ie. animation), then proceeded to the listen centre and listened to a story on cassette about the food with a read-along book, and soon afterward went to the art centre and painted a picture of the food, and finally heard about some aspects of the food while in a teacher-directed, large group meeting area, the child would become very familiar with that food. It has been shown in preschoolers and in children as young as 2 years old that preference is an increasing function of exposure (Birch and Marlin, 1982; Birch 1979(a); Birch et al., 1987(b)). Consequently, increased exposure to a food increases the likelihood that the preschooler would taste that food. Since Foodstyles:K objectives include that:

1. the student identify a wide variety of foods, and
2. the student experience foods through tasting, cooking, discussion and record-keeping activities, thus building positive feelings about trying new foods,

exposure of the students to a wide variety of foods at all classroom activity centres would achieve these objectives. Moreover, as variety is an essential component of a healthy diet (Canada, 1990), this goal of nutrition educators would almost certainly be accomplished.

b.) Frequency of Teaching Foodstyles:K

Teachers indicated a preference to teach the Foodstyles:K program throughout most of the school year or for a very short time during the school year. Most teachers appeared to either cluster their teaching of Foodstyles:K in 1-3 months per school year (37%) or in 8-10 months of

the school year (39%). Several teachers indicated they focused Foodstyles:K into one month of the school year, usually tying it into a theme they were studying. Throughout the rest of the year nutrition was discussed, but not with the same intensity as during the month when Foodstyles:K was taught. Furthermore, most teachers taught Foodstyles:K from 1 to 4 times during each month that they incorporated the program into their classroom activities. Those teachers who taught Foodstyles:K over a few months of the school year were significantly more likely to introduce the program more frequently per month over those few months than teachers who taught the program throughout most months of the school year.

Four out of five teachers introduced between 4 to 12 foods throughout the school year. When clustered into groups of 4-6, 7-9 and 10-12 foods, each group was reported with approximate equal frequency. These results show that many teachers introduced fewer than the 8 foods recommended as a minimum in the Teacher's Guide to meet the program objectives. It was also clear that the number of foods introduced using Foodstyles:K seldom surpasses 12 foods, the same number of foods for which materials are provided in the Foodstyles:K teacher's kit. This implies that teachers who are eager to teach Foodstyles:K will do so, however, should additional work be necessary, teachers are reluctant to prepare the extra materials required for completion of Foodstyles:K activities.

The practical versatility of the program was clearly evident from the wide range of times per month, and number of months teachers reported using Foodstyles:K, as well as from the wide number of introduced foods reported over the duration of one school year.

c.) Teacher Satisfaction with Foodstyles:K

Satisfaction with the practical use of Foodstyles:K was revealed by teachers who reported, first, that they strongly felt the Foodstyles:K program was easy to teach. One teacher commented that the program was, "Excellent. Well thought out." Second, most teachers felt that introduction of at least 8 foods was sufficient to meet the Foodstyles:K objectives, although numerous teachers felt that this number should be greater than 8. One teacher commented that a minimum of 8 foods was "too much at times for my class," but went on to state that "some years I do 8 and more." Finally, teachers strongly agreed that it was easy to meet the program objectives teaching Foodstyles:K. These impressions of the program support the unsolicited comments submitted by teachers in the "past but not present" use group who voluntarily described the program as "good", "excellent" or "terrific."

d.) Foodstyles:K Core Activities**i.) Successful Core Activities**

Unquestionably, cooking was the most successful Foodstyles:K core activity from the teacher's perspective for both the students and themselves in terms of ease and enjoyment of teaching, and of greatest importance for the students to complete in order to meet the objectives of the program. Cooking was also the favoured activity for stimulating the student's interest in foods. Because of their natural curiosity children are motivated by action-oriented activities. The activities associated with cooking are mostly of an interactive nature, well suited to the developmental level of the kindergarten student (Whitener and Keeling, 1984). The multitude of experiences associated with cooking, aid in achieving the ultimate goal of early childhood nutrition education programs, to help children learn to make wise food choices.

The frequency of use of recipes in either the "Easy Ideas" or "More Challenging Cooking" categories of recipes was not taken into account in the design of the teacher questionnaire, however, with almost 90% of the "current" use teachers reporting use of the recipes, the inclusion of recipes in the Teacher's Guide seems ostensibly desirable to the teachers. In support of this, one teacher commented, "Appreciate your prepared activities for teachers. It's an incentive to use them as the activity is already done and saves time for teachers or helps me do other spin-off activities."

The "Mystery Food" and "I Tried It!" sticker activities were also popular with the teachers to stimulate the student's interest in foods. Popularity of the "Mystery Food" activity may be attributed to the element of surprise involved, combined with the first hand experience of sensory exploration. Smelling, poking, shaking, tasting and squeezing are but a few of the natural learning behaviours of young children (Scarr et al., 1986). When introducing young children to new foods, worksheets and food pictures are less effective than first hand experiences, however, for foods that have been previously introduced, pictorial representations can be effective (Whitener and Keeling, 1984). Sensory exploration allows young children to solve problems and extend their knowledge. The "Mystery Food" activity encourages this by permitting the students to use their tactile, olfactory and audible senses while restricting their senses of sight and taste. For food introduction, the popularity of the "Mystery Food" activity versus the "Who Am I?" activity may in large part be due to the presence of sensory exploration with "Mystery Food" and its absence with "Who Am I?." It has been well documented that the experience of sensory exploration with foods is a prerequisite for the formation of advanced nutrition concepts (Seefeldt and Barbour, 1990; Christenberry and Stevens, 1984; Whitener and Keeling, 1984; Yussen and Santrock, 1982; Vancouver School Board, 1981).

Children love stickers. Contributing to their popularity may be a sense of pride the children have acquired by accomplishing a task associated with the Foodstyles:K program and of being able to share that pride with members of their family as they wear the stickers home. Almost all teachers used the sticker activity but did so with a variety of approaches. Some teachers did not give out the stickers every time as they did not want their students to expect them. Yet, other teachers reported making their own stickers. Although this requires greater organization and preparation time by the teacher, it does add an individualized dimension to the program, particularly if the students are involved in creating their own stickers.

ii.) Less-successful Core Activities

In contrast to cooking, "Mystery Foods" and "I Tried It!" stickers, teachers perceived the Class Club, "Who Am I?" and "Look What I Tried" journal activities as the least favoured activities in terms of their ease and enjoyment of teaching the program, stimulating the student's interest in foods, and of being important for the students to complete in order to meet the objectives of Foodstyles:K.

Teachers attributed the lack of success of the journal activity to the "tedious," "repetitive," and "boring" nature of completing the journal pages or of being "too time consuming" to be completed within the daily time frame of the P-1 classroom schedule. These results are supported by comments from teachers in the "past but not present" use group. One teacher requested that only one food appear per sheet. She commented, "It's very difficult for the children to cut out one picture and have to care for and return the remaining pictures for future use. Perhaps something different could be done in the future!" One teacher reported that

although the children were not fond of the journals, she felt the journals were important to do so that the parents could see them, and they were useful for teacher evaluation. Another teacher felt the journals were a more appropriate activity for later on in the year, once the students had advanced their concept development and printing skills.

Although the Class Club activity is designed to facilitate a link between school and home, the importance of this activity was ranked lowest of all core activities by the teachers, with only about 1/3 of the teachers reporting use of the Class Club activity. Several teachers who tried using the Class Club activity reported finding "very few [parents] participated by returning forms." This may in large part be due to language barriers, since many of the children's parents would have been raised in their country of origin and may only speak the language of that country. One teacher noted, "As long as parents did not have to take part in returning forms" they were somewhat supportive of the program. Most of the support she received was verbal. Another teacher noted parental support changes from year to year and it is unpredictable to determine how much of the program is carried through at home. On the other hand, several teachers reported positive parental support. From one class the teacher wrote, "Moms have suggested that they [original emphasis] should send the list of foods they would like to get their child to eat." From another class the teacher noted, "I enjoyed using the program and so did my students. The parents even commented that they were more willing to try new foods at home. Parents seldom comment on school programs." As noted in the Teacher's Guide, "parent involvement is the key to the success of this activity." Changes in the cultural make-up of British Columbia have resulted in an increasingly multicultural society. The percent distribution of population by ethnic origin in British Columbia has changed dramatically since 1966 when Canadian immigration laws were altered to facilitate the immigration of persons from all regions of the world, thus abandoning the country's

long history of selective European and British immigration (White, 1990). As a result of this, many of the parents of children in the public school system struggle with English and are not able to communicate adequately enough to complete the Class Club cards with the name of the new food the child tried at home. Since parental involvement is essential to the overall success of Foodstyles:K, not only to the Class Club activity, it is important to be able to effectively communicate with the parents, to encourage them to become involved in the classroom activities. Translation of the parent letter and the attached forms into some of the more common first languages spoken by children in British Columbia could act as an aid for the parents and may result in an increased participation in classroom activities.

In the past, immigrants tended to settle in the rural areas of the province, but more recently, immigrants have settled in the urban areas of British Columbia. In 1986, 62% of the immigrant population of B.C. resided in the Vancouver metropolitan area. As a result, immigration to British Columbia has created a culturally heterogeneous society, particularly in the Lower Mainland (White, 1990). No where is this more visible than in the classrooms of the province. It thus seems imperative that parents of the students in the public school system be reached and invited to participate in school activities.

e.) Student Interest in Foodstyles:K

Student interest in Foodstyles:K was rated high by the teachers. Although there was no measure of student interest in other classroom activities, from the teacher's perspective it is apparent that students found this program appealing. This high level of student interest indicates that the materials used in Foodstyles:K activities are challenging and attractive to the students. When

teachers choose to include activities related to the introduced food into some or all of their classroom activity centres, they may find it more effective to combine materials from one centre with those from another. In effect, this provides variety in the classroom activities the children have come to associate with Foodstyles:K and may be effective in maintaining the high level of student interest reported by the teachers. Again, the flexibility of the program would easily accommodate this.

B. SUMMARY

From voluntary comments and the results obtained, it appears that the Foodstyles:K program is enjoyed by teachers, students, and parents. Approximately half of all teachers who attended a Foodstyles:K workshop made continued use of the program in their classroom activities. Many teachers in both the "past but not present" and "current" use groups voluntarily commented that Foodstyles:K was an "excellent," "good," or "terrific" program. From both the quantitative and qualitative data collected through the teacher questionnaire it is apparent that teachers who teach the program find it appealing to teach and to be of substantial educational value to their students. Of those teachers who do not teach the program, constraints on their time, both inside school and outside school appear to be the major impedance to teaching Foodstyles:K.

C. SUGGESTED FUTURE REVISIONS TO THE TEACHER QUESTIONNAIRE

The abundance of mostly voluntary qualitative data helped to substantiate and expand our understanding of the quantitative results. With a well designed questionnaire, all study questions should be answered. Development of the teacher questionnaire was in consultation with dietitian/nutritionists familiar with the Foodstyles:K program, as well as with primary teachers. While the design of this specific questionnaire was original and met the requirements of this study, some limitations became apparent when discussing the results. Should a future assessment of teachers' perceptions of Foodstyles:K be conducted, suggestions which address the limitations and which may be of some utility are presented here.

I. "Never" Use Group

Adjunct to Question 3(a) 1. response.

If they indicate they made their decision not to teach Foodstyles:K during the workshop, then a secondary question to this response could be:

Please describe any particular aspect(s) of the workshop which contributed to your decision at the workshop not to use Foodstyles:K with your students.

Adjunct to Question 3(a) 2. response.

If they indicate they made their decision not to teach Foodstyles:K after the workshop, then a secondary question to this response could be:

Please describe the circumstances responsible for your decision not to teach Foodstyles:K following your attendance at the workshop.

II. "Past but not Present" Use Group

Insert after Question 2(a).

Please indicate your overall impression of Foodstyles:K when you taught the program.

- ☐ EXCELLENT
- ☐ GOOD
- ☐ SO SO
- ☐ POOR
- ☐ UNSATISFACTORY

Under what conditions would you reintroduce Foodstyles:K into your classroom activities? Please describe.

III. "Current" Use Group

Changes to Question 4.

More specific wording of the question.

1. ON IT'S OWN Use of the program is not tied into other activities in the
classroom. The program stands on it's own.

2. INCORPORATED INTO SOME CLASSROOM ACTIVITY CENTRES

3. INCORPORATED INTO ALL CLASSROOM ACTIVITY CENTRES

4. INCORPORATED INTO SOME CLASSROOM THEMES

5. INCORPORATED INTO ALL CLASSROOM THEMES

6. OTHER. Please be specific. _____

Adjunct to Question 6.

Please indicate which foods you have introduced using Foodstyles:K during the past school year.

	YES	NO		YES	NO
Apple	<input type="checkbox"/>	<input type="checkbox"/>	Cabbage	<input type="checkbox"/>	<input type="checkbox"/>
Broccoli	<input type="checkbox"/>	<input type="checkbox"/>	Bread	<input type="checkbox"/>	<input type="checkbox"/>
Rice	<input type="checkbox"/>	<input type="checkbox"/>	Cereal	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt	<input type="checkbox"/>	<input type="checkbox"/>	Cottage Cheese	<input type="checkbox"/>	<input type="checkbox"/>
Cheese	<input type="checkbox"/>	<input type="checkbox"/>	Peanut Butter	<input type="checkbox"/>	<input type="checkbox"/>
Eggs	<input type="checkbox"/>	<input type="checkbox"/>	Fish	<input type="checkbox"/>	<input type="checkbox"/>

Adjunct to Question 9.

We would like you to rate the children's interest in Foodstyles:K compared with the children's interest in other classroom activities. Please describe the activities as appropriate.

Classroom activities of greater interest to the children than Foodstyles:K.

Classroom activities of as equal interest to the children as Foodstyles:K.

Classroom activities of lesser interest to the children than Foodstyles:K.

Adjunct to Question 10.

Please indicate which recipes you have used from the Teacher's Guide.

EASY IDEAS

	YES	NO
Yoghurt Sundaes	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt Pops	<input type="checkbox"/>	<input type="checkbox"/>
Vegetable Dip	<input type="checkbox"/>	<input type="checkbox"/>
Hard-Cooked Eggs	<input type="checkbox"/>	<input type="checkbox"/>
Peanut Butter	<input type="checkbox"/>	<input type="checkbox"/>
Tuna or Salmon Salad	<input type="checkbox"/>	<input type="checkbox"/>
Bread Smorgasbord	<input type="checkbox"/>	<input type="checkbox"/>
Picnic Mix	<input type="checkbox"/>	<input type="checkbox"/>
Crunchy Granola	<input type="checkbox"/>	<input type="checkbox"/>
Rice	<input type="checkbox"/>	<input type="checkbox"/>
Dried Apples	<input type="checkbox"/>	<input type="checkbox"/>
Raw Vegetable Tastees	<input type="checkbox"/>	<input type="checkbox"/>
Fruit Salad	<input type="checkbox"/>	<input type="checkbox"/>
Fruit 'n Peanut Butter	<input type="checkbox"/>	<input type="checkbox"/>

MORE CHALLENGING COOKING

	YES	NO
Cheese Fondue	<input type="checkbox"/>	<input type="checkbox"/>
Cream of Broccoli Soup	<input type="checkbox"/>	<input type="checkbox"/>
Devilled Eggs	<input type="checkbox"/>	<input type="checkbox"/>
Eggs in a Nest	<input type="checkbox"/>	<input type="checkbox"/>
Bread Pinwheels	<input type="checkbox"/>	<input type="checkbox"/>
Oatmeal Peanut Butter	<input type="checkbox"/>	<input type="checkbox"/>
Crunchies	<input type="checkbox"/>	<input type="checkbox"/>
Cheese Biscuits	<input type="checkbox"/>	<input type="checkbox"/>
Savory Crackers	<input type="checkbox"/>	<input type="checkbox"/>
Mini Pizzas	<input type="checkbox"/>	<input type="checkbox"/>
Fried Rice	<input type="checkbox"/>	<input type="checkbox"/>
Rice Pudding	<input type="checkbox"/>	<input type="checkbox"/>
Cabbage Roll-ups	<input type="checkbox"/>	<input type="checkbox"/>
Coleslaw	<input type="checkbox"/>	<input type="checkbox"/>

D. SUGGESTED RECOMMENDATIONS FOR CHANGE TO THE FOODSTYLES:K PROGRAM BASED ON THE TEACHERS' PERCEPTIONS

To increase its effectiveness, some recommended modifications to the Foodstyles:K program are proposed. Results from both the qualitative and quantitative aspects of Phase I have indicated that childrens' interest in Foodstyles:K was rated high by the teachers. However, a limitation of the program that was highlighted by these results was the "tedious" nature of completing the journal pages. In the Teacher's Guide it is suggested that a copy of the food picture be distributed to each student. The feedback from teachers through both the teacher questionnaire and direct contact in Phase II indicates that the students themselves cut out the appropriate food picture from the sheet, which leaves a sheet with many cut out areas. As the number of introduced foods increases, the cut out sheet becomes increasingly awkward for the students to manage. To be of advantage to the students, a recommendation is made for 12 copies of one food per sheet. While one student cuts out her/his food pictures, the other students could be working on other areas of the journal page until the sheet was passed on to them. This arrangement permits greater interaction between the students and encourages socially appropriate behaviour as they complete their journal pages.

Given the multicultural make-up of the Lower Mainland area, a greater diversity of ethnic foods in the food pictures is recommended. An additional set of 4-colour representations of foods would suffice. It is recommended that a master journal page with no food named on the page and a second perforated page with the names of each food in the pictures be available in the Teacher's Guide. The teachers could simply tape the name of each food into the appropriate space on the blank master page and photocopy as many sheets as required. This arrangement would also be

applicable to the 12 foods currently presented in the program, thus reducing the number of pages in the Teacher's Guide.

To provide parents with a better understanding of the nutrition education that takes place in the classroom, a recommendation is made for an information sheet in the Teacher's Guide that provides parents with general background information, including Canada's Food Guide, on nutrition for young children with examples of foods available in British Columbia. Translation of this sheet into several of the more commonly spoken languages would be necessary so the teachers could simply photocopy and distribute the sheets appropriately.

From observation, many students tended to create similar images for each different food in their journals. A broader background experience with some foods, other than just food introduction and cooking, may help stimulate their natural ability to visually represent their mental images. To facilitate this, it is recommended that a suggestion appear in the Teacher's Guide for teachers to set up a "Garden Centre" where the students could plant seeds (eg. carrots, a root crop; beans, a vine crop), nurture the seedlings and watch the plants grow. As the plants mature the students could harvest the "crop", compost the inedible portion, participate in preparing the food for consumption and taste the end product. The students could be encouraged to use their senses from observing the changes in plant growth to tasting the food they prepare. Associated with a variety of experiences, the "Garden Centre" could lead to increased enthusiasm for completing the journal worksheet.

A final recommendation is to have a French language edition of the Teacher's Guide and program materials. Increased numbers in French immersion classes throughout the Lower Mainland

resulted in numerous teachers commenting that they would use Foodstyles:K if it were available in French.

3. PHASE II - EVALUATION OF FOODSTYLES:K - PARENT AND STUDENT PARTICIPATION

A. PARENTAL PRETEST QUESTIONNAIRE

For the most part, there were no striking differences between the demographic variables of the 2 study groups obtained from information provided in the parental pretest questionnaire. The 2 groups exhibited similar characteristics with the exception of the children's cultural heritage. A significantly greater proportion of children in the control group than in the intervention group had a reported cultural heritage "Other" than Canadian/British/English. Considering this statistic alone, it could be speculated that student's familiarity with the test foods would be lower in the control group versus the intervention group, given the preponderance of Western-type foods represented by the food models. However, in contrast to studies illustrating cultural influence on food choices, this effect was not observed. This suggests that although a significant difference existed between the two study groups, the effect of cultural heritage on this study sample was small.

It has been documented that ethnicity can be a predictor of dietary behaviour (Axelson, 1986; Rozin and Vollmecke, 1986), and dietary behaviour, in turn, is determined by multidimensional variables, including; economic, environmental, biological and social variables in addition to culture (Johns and Kuhnlein, 1990). While learning about the cultural meaning of food during the

preschool period, children rapidly acquire food preferences and dietary behaviours (Birch, 1987(b)). It is these food acceptance patterns acquired early in life that are important not only to ensure adequate nutrition for normal growth and development, but also because they are reflected in food acceptance patterns later in life (Birch, 1987(b); Cooper and Philip, 1974; Hendricks et al., 1988). It is, therefore, necessary to acknowledge not only the foods associated with different cultures, but also their traditional preparation, and to incorporate ethnic foods into early childhood nutrition education programs such as Foodstyles:K. Cultural influences on food selection by young children should not be underestimated.

B. PARENTAL PRETEST AND POSTTEST QUESTIONNAIRES

Parents of children in both study groups indicated a slight increase in their child's willingness to eat a variety of foods and unfamiliar foods over the course of a school year. Previously published reports of kindergarten children's familiarity with and willingness to eat specific foods are lacking. However, early childhood nutrition education programs have shown, in general, that program intervention has a positive effect. In evaluating the Ontario Milk Marketing Board "Big Ideas" nutrition education program for teachers from kindergarten to grade 3, Cooper and Philip (1974) reported improvement in nutrition knowledge and in eating behaviour of children taught nutrition education by a workshop-trained teacher. The authors acknowledged their measurement of change in behaviour (records of what the student ate for breakfast on the day of the test) was not completely reliable and considered their results to reflect more of a change in attitude than a change in behaviour. Even so, the change in attitude was in the right direction relative to the goals of the program.

Berenbaum (1986) reported results from a Master's thesis by ME MacDonald at the University of Guelph (1985). A significant increase was observed in nutrition knowledge of preschoolers exposed to the Ontario Milk Marketing Board "Good Beginnings" early childhood nutrition education program over a 10 week period. The time frame of this evaluation was much shorter than the evaluation of Foodstyles:K. Reduced effects of confounding factors such as maturational effects, changes in class make-up, and deterioration of recall, would be associated with shorter term versus longer term evaluations. Because of these factors, evaluations extending over a longer term may not reveal subtle effects of the program. The flexible nature of Foodstyles:K is an attribute of the program, and hence, evaluation of the program was designed to accommodate this flexibility. While a shorter term evaluation may have unveiled more subtle effects, it would not have reflected the true nature of the program.

Reports from the United States on the effects of early childhood nutrition education programs on preschool children's knowledge, attitudes and food behaviour are consistent with results from the Canadian studies. Lawatsch (1990) reported a significant effect of 2 teaching strategies on children in a benefit appeal group and children in a threat appeal group compared with children in a control group in terms of their nutrition knowledge, attitudes and food behaviour. The 2 experimental groups were each exposed to 3 different nutrition education presentations (fairy tales) over 3 days and the control group did not hear the fairy tales. Gorelick and Clark (1985) reported an overall significant improvement in food and nutrition knowledge as measured by a project-developed test. Again, the intervention was confined within a short time frame. In this study, the intervention occurred twice a week over a 6 week period. As discussed previously, employment of a short term evaluation may enhance the unveiling of subtle program effects in nutrition knowledge, attitudes and food behaviours.

A recent longer term evaluation conducted by Hendricks et al. (1989) assessed the effect of a preschool health education curriculum on the health knowledge of children aged 3 to 6 years, over the course of a school year. Although this study was not confined to nutrition alone, and involved areas as diverse as medicine and drugs, safety, hygiene, dental health, responsibility and nutrition, the evaluation employed a quasi-experimental pretest (October)-posttest (April) comparison group design, similar to the experimental design used to evaluate Foodstyles:K. These authors reported significant increases in preschoolers health knowledge scores for both intervention and control study groups when using their modified version of an existing and reliable instrument for preschool children. Unlike willingness which represents behaviour, familiarity could cautiously be compared with knowledge as both represent recognition of a person, place or thing. With the Foodstyles:K evaluation, the general trend observed in terms of students' increased familiarity with the test foods, was similar to the results reported for student's health knowledge by Hendricks et al. (1989).

Overall, it appears that short term evaluations have an advantage of being more responsive to subtle effects of a program. Yet, a possible disadvantage could be that short term changes may not persist over time. Whereas, the longer term evaluation may have a greater number of confounding factors which reduce the potential for detecting an impact of the program, they are possibly more indicative of a true impact.

C. PARENTAL POSTTEST QUESTIONNAIRE

The percentage of parents in the intervention group who reported their child had mentioned exposure at school to a food s/he requested was greater than double that found in the control group. This significant result ($p < .001$) reflects achievement of one objective of the program, to stimulate dialogue between parents and their children about foods the children were exposed to at school. Since most teachers who teach Foodstyles:K reported using the "I Tried It!" stickers and fewer reported use of the "Look What I Tried!" journals and still fewer reported use of the Class Club activities, all of which facilitate a link between home and school, the inclusion of stickers in the program kit appears to have the greatest influence on achieving one program goal, to stimulate discussion between parent and child.

The percentage of parents who reported changes in their child's food habits over the school year, was similar for both study groups, and therefore, no definitive conclusions could be made as to any effect of the program on changes in childrens' food habits over the kindergarten year. As with any study, all conclusions drawn are dependent upon the measures used in the study. When interpreting the measure of change in food habit, the questionnaire item may have been confusing to the parents. Adoption of a new food behaviour does not necessarily lead to habit, as defined by achieving maintenance of that specific food behaviour (Glanz, 1981). Therefore, because the concept of habit is difficult to interpret, elimination of this questionnaire item is recommended on any future revisions of the parental posttest questionnaire.

D. STUDENT FAMILIARITY DATA - PRETEST AND POSTTEST

Major research questions in this study were designed to investigate whether Foodstyles:K increased kindergarten students' familiarity with a variety of foods and their stated willingness to eat the foods. From this study, a direct impact of Foodstyles:K was not detected for childrens' familiarity with the foods and for childrens' stated willingness to eat the foods. However, as will be discussed below, a potential impact of Foodstyles:K may have been concealed by limitations inherent in the study.

As expected at pretest, due to randomization of the study groups, both study groups were similar in terms of the student's familiarity with the test foods. Generally, where significant changes appeared in students' familiarity with the foods for the intervention group, similar results were obtained for students in the control group. This suggests that the observed increase in familiarity from pretest to posttest for both study groups may be representational of an unfolding of the natural maturational process which occurs over the course of a school year. The magnitude of difference between the 2 study groups did not change from pretest to posttest, and supports this interpretation of the results.

The greatest gain in familiarity of foods was observed with students in the intervention group and for introduced foods. However, because the increase in familiarity for the control group was almost as large as for the intervention group, an effect of the program could not be demonstrated.

Student recall of the names of the foods should be considered as a possible contributing factor to the significant increases observed from pretest to posttest. Two types of memory are found in preschool children; 1.) episodic, and 2.) semantic memory. Young children are relatively deficient

in strategies for retrieving episodic memories (Brown, 1975; Reese, 1976; Bee and Mitchell, 1980). Episodic memory would have been primarily used in this evaluation. Children were exposed to the food models once and then once again approximately 7 months later. During the individual interviews, the students were actively involved in transferring the food models from one tray to another. It has been documented that active involvement of a preschool child in a situation of interest to her/him will more likely result in accurate memory later on (Kastenbaum, 1979). Students whose interest was piqued by participating in the interviews may have a better and more accurate recall than students who lacked interest in the procedure. Therefore, recall of the names of foods by some students at posttest could not be entirely ruled out.

The trend for students to be more familiar with the non-introduced foods than the introduced foods at pretest and at posttest was consistent for both study groups. The designation of foods into either food category (introduced or non-introduced), which may account for this trend, was restricted by the foods available as food models and by the design of the study which included equal representation of all 4 food groups in each food category.

A major limitation of this study was the basis for the selection of foods and their designation into either of the introduced or non-introduced food categories. Studies describing preschool children's familiarity with specific foods are lacking in the literature. Selection and designation of the test foods was determined primarily on personal observation of and dialogue with kindergarten-aged children regarding the foods with which they were familiar and unfamiliar. Randomization of the foods into the two food categories would have eliminated any possible bias.

E. STUDENT AND PARENT WILLINGNESS DATA- PRETEST AND POSTTEST**I. Student Willingness**

Investigation of the student's willingness to eat the 16 test foods revealed few significant findings with the exception of willingness to eat a greater number of the non-introduced foods over the introduced foods at both pretest and posttest for the intervention group. This followed the same trend observed for students in both the intervention and control groups who showed familiarity with a larger number of the non-introduced foods over the introduced foods at both pretest and posttest. However, a direct association between student's familiarity with the test foods and their willingness to eat them cannot be drawn from these results as this trend of increased willingness to eat non-introduced over introduced foods was not observed with students in the control group.

The use of food models in this evaluation reflects a limitation of the study. For some foods, the representations were not as real nor did they look as appetizing as for other foods, which could influence the student's willingness to eat the test foods. Birch (1979(b)) reported a strong correlation between measures of preference and consumption of real foods with 3 and 4 year olds. Although the present study did not address consumption, only willingness, the logistical use of real foods was precluded due to the design of the study extending over the period of one school year.

A second confounding factor may have been the nature of each study group. Students in the intervention group with a cultural heritage "Other" than Canadian/British/English constituted only 17% of the study group compared with 41% of students in the control group. A substantial proportion of the food models available were representations of mostly Western-type foods.

Although the two groups differed significantly in cultural heritage, the food models used in the student interviews may have been biased toward being more recognizable by students with a Canadian/British/English cultural heritage. This could account in part for the non-significant, but general, trend observed of students in the intervention group to state they were willing to eat a greater number of foods at pretest and at posttest, compared with students in the control group.

Gender distribution should also be considered when addressing the nature of each study group. Although there was 12% more girls in the control group than in the intervention group, and conversely, 12% more boys in the intervention group than in the control group, this difference was not significant. Essentially, there is no evidence to suggest that either sex is consistently faster in development of sensorimotor, preoperational or concrete operational skills (Bee and Mitchell, 1980). This should dispense of a potential argument for gender bias in the study population.

II. Parents' Perceptions of Their Child's Willingness to Eat the Test Foods

Investigation of parents' perceptions of their child's willingness to eat the 16 test foods revealed very consistent findings which suggested parents do not perceive a substantial change in their child's food acceptance behaviour over the school year in which the child attends kindergarten. This is supported by similar results obtained for each study group when parents reported any changes they had noticed in their child's food habits over the course of the kindergarten year. However, these results should be interpreted with caution, as once again, the ambiguity of the term "food habits" may have led to confusion when parents interpreted the term.

III. Parents' Perceptions of Their Child's Willingness to Eat the Test Foods Compared with Their Child's Actual Response

Overall, students consistently indicated they were willing to eat more of the 16 test foods than their parents perceived. These results could reflect the different methods of data collection for the parents and their children. Parents were asked simply to recall their responses, whereas the children's responses were collected using visual aids, a situation where the representation of the foods may have influenced the children's responses. Use of the same data collection tools for both parent and child would have eliminated any bias resulting from the use of visual aids in one case and recall in the other.

F. PARENT/STUDENT MATCHING DATA

Reports in the literature suggest maternal reports of their child's eating behaviour are not very accurate and that preschool children themselves are reliable sources of their food intake (Basch et al., 1990; Birch, 1979(b); Emmons and Hayes, 1973). In the parent questionnaire, no question asked the respondent's relationship to the child, and therefore, it cannot be assumed that the mother completed it, although most often questionnaires returned directly to the teacher were done so by mothers. An overall 73.4% agreement between parent and child compares favourably with the 71% agreement Pliner and Pelchat (1986) reported between mothers' reports of their child's food preferences for 26 foods and their children's reports, and the 71% agreement reported by Emmons and Hayes (1973) between mothers and their 6 year old child when using a 24 hour recall method of data collection.

Results from the present study indicate that parents can be useful sources of information regarding their preschool child's willingness to eat specific foods, but parental reports should not be entirely relied upon for this information. As discussed previously, changes in the methodological design of future research investigating the agreement between parents' perceptions of their preschool child's willingness to eat specific foods and the child's responses should include employment of the same data collection tools for both parent and child. The choice of visual aids seems appropriate as kindergarten children span a range of development skills and many are unable to read proficiently at this age (Gorelick and Clark, 1985; Herr and Morse, 1982; Contento, 1981). Even with the use of the same data collection tool for both parents and children, where the opportunity exists, data should be collected directly from the children (Birch, 1979(b)) and used as their indication of willingness to eat specific foods.

4. IMPLICATIONS FOR FUTURE RESEARCH

Implications for future research based on the results from this evaluation include:

1. Increased demands on teachers' time must be considered in the development, implementation, evaluation and revision of nutrition education programs.
2. With a multicultural population, foods used in program activities should be representative of the ethnic groups present in the population.
3. There is a need to address parental attitudes toward nutrition, as parents greatly influence young children's familiarity with foods.

CONCLUSION

The need for early childhood nutrition education programs is not a new issue in the field of health promotion. The present concern lies in how to maximize the effectiveness of available programs and of equal importance is how to evaluate whether the programs have an impact on the target group.

Results from this evaluation suggest the Foodstyles:K program was well received by teachers who had attended a workshop. Seventy five percent of teachers taught the program following attendance at a workshop. Furthermore, during the school year which was evaluated, almost half the teachers were teaching at least one activity of Foodstyles:K to their students. An increased demand on both in-class and out of class time was largely due to implementation of the dual entry system and the new primary program in British Columbia. Lack of time accounted for the majority of reasons why kindergarten teachers were not teaching Foodstyles:K during the school year for which the evaluation was conducted. Many of these teachers, however, voluntarily commented that the program was "good," "excellent," or "terrific" - a testament to their belief in the value of the program.

No direct impact on student's familiarity with specific foods and their stated willingness to eat them was observed. The wide ethnic diversity of the study sample and the selection of foods represented as food models may have potentially affected the detection of an impact of the program.

Results from parents' perceptions of effects of the program also indicated no direct effect on their child's nutrition knowledge and food behaviour.

The impact of nutrition education is often difficult to measure as results are not always visible in the short term. Early childhood nutrition education, as with any education program, must be considered as a long term investment in the overall education of young children. Encouraging healthy eating habits during this period of initial behaviour development is often easier than trying to alter existing behaviour (Hendricks et al., 1989). Since early childhood is a time when food habits are developing, the best opportunity we can offer young children is one in which their interest in foods is piqued and they feel good about trying new foods. By successfully encouraging children to eat a wide variety of foods and unfamiliar foods, the ultimate goal of nutrition educators is achieved.

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APPENDIX 1. Year 2000 Document

Year 2000 is an ambitious response by the Government of British Columbia to the recommendations made by the Royal Commission on Education (Sullivan, 1988). The British Columbia public school grade system is no longer structured as kindergarten, followed by grades 1 through 12, but is now divided into three programs; Primary, Intermediate, and Graduation. One key feature of the new Primary Program (P-1 to P-4; formerly kindergarten and grades 1-3) is that it no longer is a series of grades, but is a *single* program entity. For most learners, the "Primary Program will constitute the first 4 years of schooling, the Intermediate Program the next 7 years, and the Graduation Program the last 2 years" (Province of British Columbia, 1991 (a), (b)). The three programs are structured around four "strands"; Humanities, Science, Fine Arts and Practical Arts, all of which are comprised of subjects (Province of British Columbia, 1989 (a)). Nutrition is categorized under the subject titled "Learning for Living" which is a component of the Humanities strand. Eighteen goals are at the heart of the subject "Learning for Living." Each of these goals is general in nature and can be targeted to any of the Primary, Intermediate or Graduation Programs. Within the "Learning for Living" subject, nutrition directly falls under the content area termed "Healthy Living." Goals for "Healthy Living" at the primary level encourage students to participate in activities which will direct their development towards recognizing the value in, and the practice of positive health practices.

APPENDIX 2. Piaget's Profile of Cognitive Development

The manner in which young children think ceases to amaze many adults and researchers alike. Piaget focused on the qualitative changes in intellectual abilities, as he probed the *process* of *how* children come to understand the basic principles of time and space and cause and effect that serve to organize adult thinking. His research interests concentrated on the properties of adaptation and organization of human thought.

Piaget is well known for his profile of the qualitative changes in thinking. He developed a profile of 4 stages in the development of cognition processes:

- 1.) the sensorimotor stage,
- 2.) the preoperational stage,
- 3.) the concrete operational stage, and
- 4.) the formal operational stage.

The first sensorimotor stage (infancy-2 years) is characterized by the infant developing action plans in response to sensory stimuli. The cornerstone of the sensorimotor stage is object permanence, that is learning that an object which is out of sight is not permanently out of existence. The 2-3 month old infant loses interest in an object if it is hidden whereas the 18-20 month old toddler is certain that the object exists and delights in playing hide and seek. Since motivation is a key to education, one can say that the process of cognitive development begins in earnest in this stage.

The following preoperational stage (2-6 years) is typified by many characteristics, but probably the two most significant advances of the preoperational stage are the ability to form mental images and to use symbols. The cornerstone of this stage is the development of language. Other characteristics of this second stage of cognitive development as described in the Literature Review include:

1. Inability to use causal reasoning,
2. Egocentrism,
3. Intuition,
4. Animism,
5. Centering,
6. Inability to complete conservation, seriation and hierarchical classification tasks.

Piaget called the third stage of cognitive development (7-11 years) the concrete operational stage. According to Piaget, there is a cognitive shift from egocentrism to relativism; thinking becomes more logical; and manipulation and transformation of information can be achieved in the mind. The cornerstones of the concrete operational stage include:

1. CONSERVATION, which requires the child to decentre attention, reverse thoughts and consider functional relationships and transformations,
2. CLASSIFICATION, which depends on understanding how relationships among things create classes and subclasses,
3. SERIATION, which involves logical ordering.

The limitation to logical thought in this stage is that it must be tied to concrete experience, that is, the child must see the problem in order to solve it.

The final stage of Piaget's cognitive development theory (11+ years) is termed the formal operational stage; a time when logical manipulations can be made of abstract propositions. This type of thinker can deal with hypothetical situations in a verbal manner conjuring up many hypotheses to account for some event and then testing these out in a deductive fashion (Jarman, personal communication).

The ages noted for the various stages are only approximate, however, and more importantly, a normal healthy child moves through the stages in the established sequence and does not skip stages nor regress to an earlier stage.

For the kindergarten child, their teacher is commonly an admired role model. Behaviour modification and effective learning may be achieved through young children's participation in role-taking, hence, actions taken by the teacher may profoundly affect the child's present and future nutritional habits.

APPENDIX 3. UBC Ethics Approval - Phase I

The University of British Columbia
Office of Research Services

B90-120

BEHAVIOURAL SCIENCES SCREENING COMMITTEE FOR RESEARCH
AND OTHER STUDIES INVOLVING HUMAN SUBJECTS

C E R T I F I C A T E o f A P P R O V A L

INVESTIGATOR: Barr, S.I.
UBC DEPT: Family & Nutr Sci
INSTITUTION: UBC-Campus
TITLE: The effect of an innovative nutrition
education program (Foodstyles:K) on
kindergarten children's willingness to try
a variety of foods. Phase I Teachers'
perceptions of the program.
NUMBER: B90-120
CO-INVEST: McCargar, L.J. Hammond, G.
APPROVED: **APR 26 1990**

The protocol describing the above-named project has been reviewed by the Committee and the experimental procedures were found to be acceptable on ethical grounds for research involving human subjects.

Dr. R.G.C. Johnston, Chairman
Behavioural Sciences
Screening Committee

Dr. R.D. Spratley
Director, Research Services

THIS CERTIFICATE OF APPROVAL IS VALID FOR THREE YEARS
FROM THE ABOVE APPROVAL DATE PROVIDED THERE IS NO
CHANGE IN THE EXPERIMENTAL PROCEDURES

APPENDIX 4. UBC Ethics Approval - Phase II

The University of British Columbia
Office of Research Services

B90-213

BEHAVIOURAL SCIENCES SCREENING COMMITTEE FOR RESEARCH
AND OTHER STUDIES INVOLVING HUMAN SUBJECTS

C E R T I F I C A T E o f A P P R O V A L

INVESTIGATOR: Barr, S.I.
UBC DEPT: Family & Nutr Sci
INSTITUTION: Vancouver Schools
TITLE: The effect of an innovative nutrition
education program (foodstyles:K) on
kindergarten childrens willingness to try a
variety of foods - Phase II-evaluation of
foodstyles:K
NUMBER: B90-213
CO-INVEST: McCargar, L.J. Hammond, G.
APPROVED: **AUG 9 1990**

The protocol describing the above-named project has been
reviewed by the Committee and the experimental procedures were
found to be acceptable on ethical grounds for research
involving human subjects.

Dr. R.G.C. Johnston, Chairman
Behavioural Sciences
Screening Committee

Dr. R.D. Spratley
Director, Research Services

THIS CERTIFICATE OF APPROVAL IS VALID FOR THREE YEARS
FROM THE ABOVE APPROVAL DATE PROVIDED THERE IS NO
CHANGE IN THE EXPERIMENTAL PROCEDURES

APPENDIX 5. Pretester's QuestionnairePRETESTER'S QUESTIONNAIRE

In addition to responding to these questions, please feel free to write comments directly on the instrument itself.

1. How long did it take you to complete the instrument?

About _____ minutes.

2. Was this a reasonable amount of time?

_____ Yes

_____ No

Comments: _____

3. Were any of the questions difficult to understand? If so, please specify the ones you found confusing and the reason(s) why.

_____ The questions were easily understood.

_____ The following questions were confusing, because:

4. Did the instrument adequately address the subject matter (i.e. teachers' perceptions of the Foodstyles:K program)? If not, please specify which additional areas you feel should be addressed.

5. Other comments: _____

Following receipt of your response, we will be revising the instrument to address concerns you have raised. Many thanks for your valuable assistance with this phase of the research.

APPENDIX 6. School District Authorization

Burnaby School District #41



1990-09-10

Ms. Gail Hammond,
3954 West 30th Avenue,
Vancouver, B.C.
V6S 1X3

Dear Ms. Hammond:

Thank you for your research proposal "The Effect of an Innovative Nutrition Education Program on Kindergarten Childrens' Willingness to Try a Variety of Foods". As indicated during our telephone conversation, approval has been granted for your to approach the teachers in our district who have been involved in your nutrition education workshops. Naturally, the administrators of the schools involved will need to be consulted and parental approval must be obtained before students participate in the project.

Good luck with your data collection.

Yours truly,

Blake Ford,
Director of Instruction

BGF/jk

5325 Kincord Street
Burnaby, British Columbia
Canada V5C 1W2
604-299-0671
FAX: 604-299-8593

APPENDIX 6. (cont'd) School District Authorization

Coquitlam School District #43



School District No. 43 (Coquitlam)

550 Pioneer Street - Coquitlam, B.C. - V3J 6A7 - Tel. 939-9201 - Fax 939-7020

1990-08-01

Ms. Gail Hammond,
University of British Columbia,
School of Family & Nutritional Science,
Division of Human Nutrition,
2205 East Mall,
Vancouver, B.C.
V6T 1W5

Dear Ms. Hammond:

I am writing to acknowledge receipt of your letter of July 10th, to which was attached a proposal to undertake a research study on the effect of an Innovative Nutrition Education Program on students' eating habits.

I have reviewed the intent and design of your study and can support its administration in Coquitlam School District. As you may be aware, participation in the project, however, is on a voluntary basis by schools, students and parents.

Please contact me prior to contacting schools and making further arrangements.

Yours truly,

Alan R. Taylor, Ed.D.,
Director of Instruction, Curriculum/Assessment

ART/pks

APPENDIX 6. (cont'd) School District Authorization

Maple Ridge - Pitt Meadows School District #42



School District No. 42
(Maple Ridge - Pitt Meadows)

22225 Brown Avenue, Maple Ridge, British Columbia, Canada V2X 8N6
Telephone: (604) 463-4200 Fax: (604) 463-4181

August 28, 1990.

Ms. Gail Hammond,
3954 W. 30th Avenue,
Vancouver, B. C.,
V6S 1X3

Dear Ms. Hammond:

Re: Your Application for Permission to Conduct
Research in School District No. 42

Permission is granted for you to conduct research on the "Effect of *Foodstyles* - K on Kindergarten Childrens' Willingness to Try a Variety of Foods" with two teachers, forty students and forty parents in School District No. 42. My understanding is that at least two teachers have already volunteered to be included in this study. I wish to remind you that final approval for participation will rest with the principals of the schools in which you wish to conduct the research. I would also like to request that the final results of this study be made available to the School District.

May I wish you good luck with your study.


Yours truly,

Barry T. Tietjen,
Director of Elementary Education

BTT:ja
c.c. J. M. Suddaby

APPENDIX 6. (cont'd) School District Authorization

Richmond School District #38

SCHOOL DISTRICT No. 38  (RICHMOND)

7811 GRANVILLE AVENUE / RICHMOND - B.C. / V6Y 3E3 / (604) 668-6000

Office of the Superintendent of Schools

1990.07.16

Gail Hammond
3954 W. 30th Avenue
Vancouver, B.C. V6S 1X3

Dear Ms. Hammond:

Having reviewed your application to conduct research on the subject of kindergarten childrens' willingness to try a variety of foods, I am pleased to give you permission to approach individual teachers and schools for their voluntary participation in your study.

I would appreciate receiving a copy of the report of your findings when the study is complete.

If you require assistance in identifying possible study participants please contact our Primary Curriculum Coordinator, Gina Rae. If I can be of any further assistance in the conduct of your research please do not hesitate to contact me.

Yours truly,

J.A.B. Beairsto
Supervisor of Curriculum

JABB/sw

c.c. Elementary Principals/Head Teachers
Gina Rae

"OUR FOCUS IS ON THE LEARNER"

APPENDIX 6. (cont'd) School District Authorization

Surrey School District #36



BOARD OF SCHOOL TRUSTEES
14225 - 56th Avenue, Surrey, B.C. V3W 1H9 • Telephone (604) 596-7733 • Facsimile (604) 597-0191

SCHOOL
DISTRICT 36
SURREY

1990 09 06

Gail Hammond
3954 W. 30th Avenue
Vancouver, BC
V6S 1X3

Dear Gail:

This is to confirm acceptance of your research study (The Effect of an Innovative Nutrition Education Program on Kindergarten Children's Willingness to Try a Variety of Foods). It is our understanding that you will be working with the following four teachers:

Robin Abercrombie, Serpentine Heights Elementary
Barbara Cook, Ray Shepherd Elementary
Wendy Curteis, Jessie Lee Elementary
Mary Johnson, Simon Cunningham Elementary

As discussed by telephone with Barbara, we will initiate contact with the principals of these schools to advise them of your involvement with the respective teachers. It is our request that you submit a copy of your final report to our office on completion of your study.

We wish you good luck with your work. Please don't hesitate to call if you have questions or problems.

Sincerely,

Maureen MacDonald,
District Principal

Barbara Holmes,
Research Associate ,

Dolna VanSant,
Research Associate

APPENDIX 7. Teacher Questionnaire

Cover Letter to Teachers



B.C. DAIRY FOUNDATION

May 7, 1990

Dear Teacher:

The Foodstyles:K program has been available to B.C. kindergarten teachers for the last three years. Many kindergarten teachers, like yourself, have attended a Foodstyles:K workshop. Although there has been much feedback regarding Foodstyles:K, the program has yet to be evaluated. At present, it is our purpose to determine its usefulness in the classroom, and to assess the effects it may have on children's willingness to try new foods.

Because you have attended a Foodstyles:K workshop, you can assist us with this evaluation. In order for the results to reflect a true assessment of Foodstyles:K, it is important for you to complete and return the enclosed questionnaire by May 14, 1990. It is not critical that you be currently using Foodstyles:K, as there are appropriate sections for both users and non-users alike. Each one of you can provide valuable information that will facilitate a comprehensive evaluation of the program.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so your name can be checked off the mailing list when your completed questionnaire is returned. At no time will your name appear on the questionnaire you complete. We will assume you have given your consent to participate in this phase of the study by completing the questionnaire. You may withdraw from the study at any time or refuse to answer any questions without prejudice.

A summary of the results of this research will be made available to all interested participants. You may receive a summary of the results by marking the box labelled "summary of results requested" on page 1.

We would be happy to answer any questions you may have. If you live outside the Lower Mainland, please phone 1-800-242-6455 or if you live in the Lower Mainland please phone 294-3775 to leave a message for Gail Hammond and you will be contacted shortly thereafter. Thank you for your participation in this evaluation.

Sincerely,

Gail Hammond, B.Sc.
Masters Student

Susan I. Barr, Ph.D.

Linda McCargar, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

Imperial Square, 3236 Beta Avenue, Burnaby, British Columbia V5G 4K4 • Fax 294-8199 • Tel. 294-3775

APPENDIX 7. (cont'd) Teacher Questionnaire**EVALUATION OF THE FOODSTYLES:K NUTRITION EDUCATION PROGRAM**

This evaluation is being conducted to determine the usefulness of Foodstyles:K in the kindergarten classroom and to determine whether or not it has an influence on the development of children's food habits. The information obtained may serve as a basis for future revisions of the Foodstyles:K program, as well as contribute to an understanding of the food choices made by kindergarten children.

Completion of the questionnaire represents a vital component of this project. It should take about 10 to 15 minutes of your time to complete.

Thank you for your participation in this evaluation.

- ☐ Summary of results requested.

Throughout the survey, please CHECK the BOX beside your response, where appropriate. Please note, items appear on **both** sides of the page.

PART A -- PRACTICAL ASPECTS OF THE FOODSTYLES:K PROGRAM

The first part of this survey addresses the PRACTICAL ASPECTS of the Foodstyles:K program.

1. Have you incorporated Foodstyles:K into your classroom activities?
- ☐ a. YES, I CURRENTLY USE FOODSTYLES:K IN MY CLASSROOM.
 - ☐ b. YES, I HAVE USED FOODSTYLES:K IN THE PAST, BUT I NO LONGER USE FOODSTYLES:K IN MY CLASSROOM.
 - ☐ c. NO, I HAVE NEVER USED FOODSTYLES:K IN MY CLASSROOM.

If your answer to question 1 was (a), please proceed to page 4, beginning with question 4.

If your answer to question 1 was (b), please proceed to page 2, question 2.

If your answer to question 1 was (c), please proceed to page 3, question 3.

APPENDIX 7. (cont'd) Teacher Questionnaire

2. Your experience using Foodstyles:K and your decision to no longer use Foodstyles:K can provide valuable information about the program. Your participation, will make possible a comprehensive assessment of the program.

- 2.(a) What was your primary reason for discontinuing use of Foodstyles:K?

- 2.(b) Did any of the following factors contribute to your decision to discontinue use of Foodstyles:K? Please indicate YES or NO for each item.

YES NO

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Classroom time restrictions |
| <input type="checkbox"/> | <input type="checkbox"/> | Teaching plans already established |
| <input type="checkbox"/> | <input type="checkbox"/> | Budgetary constraints |
| <input type="checkbox"/> | <input type="checkbox"/> | Organizational time requirements |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of facilities |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of inclusion as a recommended resource |
| <input type="checkbox"/> | <input type="checkbox"/> | Competition with similar programs used in the classroom |
| <input type="checkbox"/> | <input type="checkbox"/> | Management of paperwork |
| <input type="checkbox"/> | <input type="checkbox"/> | Reordering supplies |
| <input type="checkbox"/> | <input type="checkbox"/> | Inappropriate level of activities |
| <input type="checkbox"/> | <input type="checkbox"/> | Preference to teach nutrition incidentally at a suitable time, rather than as a unit |
| <input type="checkbox"/> | <input type="checkbox"/> | Unsuitable graphic materials |
| <input type="checkbox"/> | <input type="checkbox"/> | Unavailability of supplemental books and music |
| <input type="checkbox"/> | <input type="checkbox"/> | Unlikelihood of field trips |
| <input type="checkbox"/> | <input type="checkbox"/> | Unappealing aspects of the Teacher's Guide |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of colleague support |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of children's interest |
| <input type="checkbox"/> | <input type="checkbox"/> | Other. Please specify. _____ |

Thank you for your contribution to this study.

APPENDIX 7. (cont'd) Teacher Questionnaire

3. By completing the following questions, 3(a) to 3(c), the information you provide will enable a comprehensive evaluation of the Foodstyles:K program.

3.(a) When did you decide to NOT use the Foodstyles:K program?

- ☐ 1. DURING THE WORKSHOP
☐ 2. AFTER THE WORKSHOP

3.(b) What was your primary reason for deciding not to use Foodstyles:K?

3.(c) Did any of the following factors contribute to your decision not to use Foodstyles:K? Please indicate YES or NO for each item.

YES NO

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Classroom time restrictions |
| <input type="checkbox"/> | <input type="checkbox"/> | Teaching plans already established |
| <input type="checkbox"/> | <input type="checkbox"/> | Budgetary constraints |
| <input type="checkbox"/> | <input type="checkbox"/> | Organizational time requirements |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of facilities |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of inclusion as recommended resource |
| <input type="checkbox"/> | <input type="checkbox"/> | Competition with similar programs used in the classroom |
| <input type="checkbox"/> | <input type="checkbox"/> | Management of paperwork |
| <input type="checkbox"/> | <input type="checkbox"/> | Inappropriate level of activities |
| <input type="checkbox"/> | <input type="checkbox"/> | Preference to teach nutrition incidentally at a suitable time, rather than as a unit |
| <input type="checkbox"/> | <input type="checkbox"/> | Unsuitable graphic materials |
| <input type="checkbox"/> | <input type="checkbox"/> | Unavailability of supplemental books and music |
| <input type="checkbox"/> | <input type="checkbox"/> | Unlikelihood of field trips |
| <input type="checkbox"/> | <input type="checkbox"/> | Unappealing aspects of the Teacher's Guide |
| <input type="checkbox"/> | <input type="checkbox"/> | Lack of colleague support |
| <input type="checkbox"/> | <input type="checkbox"/> | Other. Please specify. _____ |

Your participation is greatly appreciated. Thank you for your contribution to this survey of the Foodstyles:K program.

APPENDIX 7. (cont'd) Teacher Questionnaire**PART B -- THE PRACTICAL USE OF FOODSTYLES:K IN THE CLASSROOM**

4. Please indicate the method you use to teach Foodstyles:K.

- ☐ 1. ON ITS OWN (i.e. a specific time has been allotted in your schedule to teach Foodstyles:K)
- ☐ 2. INCORPORATED INTO SOME ACTIVITIES (for example, if the food being introduced is apples, you may use apples in the "discovery" activities to stimulate discussion about the source of apples, or how they grow from a seed, etc.)
- ☐ 3. INCORPORATED INTO ALL ACTIVITIES (again, using apples as an example, at every activity center there would be some stimulus for the children to learn about apples [i.e. read a book about apples at the reading center, paint apples at the art center, serve apples at the house center, etc.])
- ☐ 4. OTHER. PLEASE DESCRIBE. _____

5. During the last school year, how often did you teach Foodstyles:K in your classroom?

_____ TIMES PER MONTH, and,
_____ NUMBER OF MONTHS

6. During the last school year, how many foods did you introduce using Foodstyles:K?

_____ FOOD(S)

APPENDIX 7. (cont'd) Teacher Questionnaire**PART C -- TEACHER'S PERCEPTIONS OF FOODSTYLES:K AND OF ITS EFFECT ON THE CHILDREN**

This section pertains to your observations and utilization of the Foodstyles:K program, and its effect on the children's interest in food.

The objectives of the Foodstyles:K program are for the student to IDENTIFY and EXPERIENCE a wide variety of foods through tasting, cooking, discussion and record keeping activities, thus, building POSITIVE FEELINGS about trying new foods.

7. Item 7 addresses three general areas that correspond to actual use of the Foodstyles:K program. Space has been provided for other comments you may have regarding the practical use of Foodstyles:K.

	strongly agree	somewhat agree	neutral	somewhat disagree	strongly disagree
7.(a) I feel the Foodstyles:K program is easy to teach.					
7.(b) The introduction of a minimum of 8 foods (suggested in the Teacher's Guide) is sufficient to meet the Foodstyles:K objectives.					
7.(c) When teaching Foodstyles:K, the above objectives are easily met.					

COMMENTS:

APPENDIX 7. (cont'd) Teacher Questionnaire

8. The following items address the six core activities; Mystery Food, "Who Am I?", Cooking, Journals, "I Tried It" Stickers and "I Tried It" Class Club. For EACH part of question 8, choose the THREE most RELEVANT activities. Then, rank these three activities using the following system:

- 1 = most relevant activity,
 2 = second most relevant activity, and
 3 = least relevant activity of the 3 chosen activities.

For each part of question 8, there will be a total of three unscored activities. These activities should represent the activities that you feel have the least significance to the question. We acknowledge the complexity of this question, however, by carefully following the directions difficulties should not be encountered.

	Mystery Foods	"Who Am I?"	Cooking	Journals	"I Tried It" Stickers	"I Tried It" Class Club
8.(a) How important do you feel it is for the children to complete this activity in order to meet the objectives of Foodstyles:K?						
8.(b) How effective do you feel this activity is towards stimulating the children's interest in foods?						
8.(c) Which core activity do you most enjoy teaching?						
8.(d) What is the children's favourite core activity?						

APPENDIX 7. (cont'd) Teacher Questionnaire

9. How would you rate the children's interest in the Foodstyles:K program?

- ☐ 1. VERY INTERESTED
- ☐ 2. SOMEWHAT INTERESTED
- ☐ 3. NEUTRAL
- ☐ 4. SOMEWHAT DISINTERESTED
- ☐ 5. VERY DISINTERESTED

10. Do you use the recipes in the core COOKING activity?

- ☐ 1. YES
- ☐ 2. NO

11. Do you use the JOURNAL, "Look What I Tried"?

- ☐ 1. NO -- If no, please proceed to question 12.
- ☐ 2. YES -- If yes, please proceed to question 11(a).

11.(a) Do you re-order the food picture pages from the B.C. Dairy Foundation?

- ☐ 1. YES --Please proceed to question 12.
- ☐ 2. NO --If you use resources that substitute for the food pictures,
please describe the materials you use. _____

APPENDIX 7. (cont'd) Teacher Questionnaire

Use of the "I Tried It" stickers and "I Tried It" Class Club are meant to facilitate a link between school and home. The following questions address this aspect of the Foodstyles:K program.

12. Do you use the "I Tried It" STICKERS?

- ☐ 1. NO -- If no, please proceed to question 13.
- ☐ 2. YES -- If yes, please proceed to question 12(a).

12.(a) Do you re-order the "I Tried It" stickers from the B.C. Dairy Foundation?

- ☐ 1. YES -- If yes, proceed to question 13.
 - ☐ 2. NO -- If you use resources to substitute for the "I Tried It" stickers, please describe the materials you use. _____
- _____

13. Do you make use of the "I Tried It" CLASS CLUB activity?

- ☐ 1. NO -- If no, please proceed to question 14.
- ☐ 2. YES -- If yes, please proceed to question 13(a).

13.(a) How many children returned their forms from home indicating that they have tried a new food?

- ☐ 1. MOST CHILDREN
- ☐ 2. MORE THAN HALF THE CHILDREN
- ☐ 3. ALMOST HALF THE CHILDREN
- ☐ 4. VERY FEW OR NONE OF THE CHILDREN

14. How would you rate parental support of this program?

- ☐ 1. VERY SUPPORTIVE
- ☐ 2. SOMEWHAT SUPPORTIVE
- ☐ 3. NEUTRAL
- ☐ 4. SOMEWHAT NON-SUPPORTIVE
- ☐ 5. NON-SUPPORTIVE

THANK YOU for your participation in this survey of the Foodstyles:K program.

APPENDIX 8. Notice of Willingness to Participate in Phase II**PARTICIPATION IN THE FOODSTYLES:K EVALUATION**

If you are willing to allow your class to be considered as possible participants in an evaluation of the Foodstyles:K program commencing September 1990, please complete your name and address below. Classes will be randomly assigned to either a Foodstyles:K "use" or Foodstyles:K "non-use" (control) group. If your class is assigned to the "use" group, then you would continue with your usual method of teaching Foodstyles:K throughout the 1990-1991 school year. If your class is assigned to the "non-use" group, then Foodstyles:K instruction would be excluded from your classroom activities over the 1990-1991 school year. There will be no additional workload as a teacher of either group. The researcher will be responsible for evaluation of the program. This will include a pre-test conducted early in the school year (September) to assess childrens' willingness to try new foods and an identical post-test conducted near the end of the school year (May).

Further information will be distributed upon receipt of this card with your name and address completed. Please return along with the completed questionnaire today. **Please print.**

NAME _____

NAME OF SCHOOL _____

ADDRESS OF SCHOOL _____

TOWN / CITY / POSTAL CODE _____

☐ Summary of results requested.

APPENDIX 9. First Follow-up Notice

May 14, 1990

Dear Teacher:

Last week a questionnaire requesting your perceptions of the Foodstyles:K nutrition education program was mailed to you. Your name was selected from BC kindergarten teachers who had attended a Foodstyles:K workshop between June 1987 and June 1989. If you have already completed and returned it to us, please accept our sincere thanks.

If you have not completed the questionnaire, please do so today. It is extremely important that your opinions be included, whether they be positive or negative. Otherwise, the results will not provide an accurate representation of teachers' perceptions of the Foodstyles:K program.

If by some chance you did not receive the questionnaire, or if it was misplaced, please call right now, toll-free if you live outside the Lower Mainland (1-800-242-6455) or phone 294-3775 if you live within the Lower Mainland, and another will be mailed to you today. Thanks again for your valuable assistance.

Sincerely,

Gail Hammond, B.Sc.
Masters Candidate

Susan I. Barr, Ph.D.

Linda J McCargar, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

APPENDIX 10. Updated Cover Letter to Non-respondents

June 4, 1990

Dear Teacher:

About four weeks ago, we wrote to you seeking your perceptions of the FOODSTYLES:K nutrition education program. Feedback we have received indicates that many of you did not receive your questionnaire until the day it was due to be returned. We acknowledge the confusion this created and apologize for the delayed delivery by Canada Post.

YOUR responses are a CRITICAL component of this survey. We ask that you take 5-10 minutes from your busy schedule to complete this questionnaire and return it to us within a week of receipt or as shortly thereafter as is convenient for you. It is not critical that you be currently using Foodstyles:K, as there are appropriate sections for both users and non-users alike.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so your name can be checked off the mailing list when your completed questionnaire is returned. At no time will your name appear on the questionnaire you complete. We will assume you have given your consent to participate in this phase of the study by completing the questionnaire. You may withdraw from the study at any time or refuse to answer any questions without prejudice.

A summary of the results of this research will be made available to all interested participants. You may receive a summary by marking the box labelled "summary of results requested" on page 1 of the questionnaire.

We would be happy to answer any questions you may have. If you live outside the Lower Mainland, please phone 1-800-242-6455 or if you live in the Lower Mainland, please phone 294-3775 to leave a message for Gail Hammond and you will be contacted shortly thereafter. Thank you for your participation in this evaluation.

Sincerely,

Gail Hammond, B.Sc.
Masters Student

Susan I. Barr, Ph.D.

Linda McCargar, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

APPENDIX 11. Second Follow-up Notice

June 15, 1990

Dear Teacher:

We are writing to you about our study of kindergarten teachers' perceptions of the Foodstyles:K nutrition education program. We have not yet received your completed questionnaire.

We understand this is a very busy time of the year to be asking you to complete one more form, n=but your response is very important for two reasons. First, Foodstyles:K has never been evaluated so results are of particular importance for future improvements to the program. We would like any changes that are made to meet the needs of teachers like yourself. Second, to have a meaningful picture of kindergarten teachers' perceptions of Foodstyles:K, we require information from those of you who have not responded, as you may have quite different perceptions of the Foodstyles:K program from those whose questionnaires we have already received. May we urge you to complete and return the questionnaire as quickly as possible.

If by some chance you did not receive a questionnaire, or it has been misplaced, please call toll-free if you live outside the Lower Mainland, 1-800-242-6455, or phone 294-3775 if you live within the Lower Mainland and another will be immediately mailed to you.

Your contribution to the success of this study will be greatly appreciated.

Sincerely,

Gail Hammond, B.Sc.
Masters Candidate

Susan I. Barr. Ph.D.

Linda J McCargar, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

APPENDIX 12. Parental Pretest QuestionnaireCover Letter to All Parents

B.C. DAIRY FOUNDATION
3236 BETA AVE. BURNABY, B.C.
V5G 4K4 604-294-3775

September, 1990

Hello Parents:

The new school year has arrived. In the kindergarten classroom, your child along with the other children, will encounter many new experiences that help to create an awareness and understanding of themselves and the world about them.

The nutrition education program called Foodstyles:K, developed by the B.C. Dairy Foundation, has been available to all B.C. kindergarten teachers over the last several years. During the school year from September 1990 through May 1991, your child's teacher has agreed to participate in our evaluation of the Foodstyles:K program. We are now requesting that you agree to your child's participation in our evaluation.

The purpose of the evaluation is to determine the effects this nutrition education program may have on kindergarten children's willingness to try a variety of foods. This will involve a 5 minute interview using plastic food models to assess your child's willingness to try foods near the beginning of the school year and an identical repeat of the assessment again near the end of the school year.

Two copies of the consent form are enclosed. Please sign both copies. Return ONE copy with the completed survey and retain the other for your records. By completing the enclosed survey, you can provide important information regarding your child's food experiences. We would appreciate your answering all questions, however, you may refuse to answer any questions or withdraw from the study at any time without prejudice.

We would be happy to answer any questions you may have. Please write to the address below or phone 228-2502 to leave a message for Gail Hammond with the departmental secretary and your call will be returned shortly thereafter. Thank you for your contribution to this evaluation.

Sincerely,

Gail Hammond, B.Sc.
Masters Student

Linda McCargar, Ph.D.

Susan I. Barr, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

Imperial Square, 3236 Beta Avenue, Burnaby, British Columbia V5G 4K4 • Telephone: 294-3775

APPENDIX 12. (cont'd) Parental Pretest QuestionnaireInsert to Parents of Children in the Control Group

Please keep this information page for your records.

EVALUATION OF THE FOODSTYLES:K NUTRITION EDUCATION PROGRAM

This study is the first evaluation of the Foodstyles:K program. It is being conducted to determine the effectiveness of this program in developing good food habits in your kindergarten child. The information obtained may contribute to future revisions of the Foodstyles:K program as well as contribute to an understanding of the food choices made by kindergarten children.

Your completion of this questionnaire represents an important component of this evaluation. It will require about 5-10 minutes to complete. Your participation will involve completing this survey now to provide us with baseline data. Near the end of the school year, a second survey will be distributed to you. The purpose of the second questionnaire will be for you to describe any changes you have noticed in your child's food habits over the school year.

Your child's participation will involve an individual interview with the researcher. Each child will be asked two questions during the interview. First, to sort a variety of foods, represented by food models, into familiar and unfamiliar categories. Second, to indicate which foods he/she would be willing to eat. This process will take approximately 5 minutes for each child and will be conducted both early in the school year and again near the end of the school year. This study will not influence your child's evaluation by his/her teacher.

Below is a consent form for you to complete, sign and return with the completed questionnaire in the envelope provided. Upon our receipt of the completed and signed form, it will be assumed that you have given permission for your child to participate in this evaluation.

You may be assured that all the information you provide will be completely confidential. You may refuse to participate or withdraw from the study at any time without prejudice. If you wish to comment any questions, or qualify your answers, please feel free to use the space in the margins. Your additional comments will be taken into consideration.

Thank you for your participation in this project.

CONSENT FORM

I, _____, do/do not (circle one) give consent for my
First and Last Name of Parent/Guardian
 child _____, to participate in two 5-minute interviews for this
First and Last Name of Child
 evaluation of the nutrition education program, Foodstyles:K, during the 1990-1991 school year.

 Signature of Parent/Guardian

☐ I acknowledge receipt of a copy of this consent form.

APPENDIX 12. (cont'd) Parental Pretest QuestionnaireInsert to Parents of Children in the Intervention Group

Please keep this information page for your records.

EVALUATION OF THE FOODSTYLES:K NUTRITION EDUCATION PROGRAM

This study is the first evaluation of the Foodstyles:K program. It is being conducted to determine the effectiveness of this program in developing good food habits in your kindergarten child. The information obtained may contribute to future revisions of the Foodstyles:K program as well as contribute to an understanding of the food choices made by kindergarten children.

Your completion of this questionnaire represents an important component of this evaluation. It will require about 5-10 minutes to complete. Your participation will involve completing this survey now to provide us with baseline data. Following implementation of the Foodstyles:K program throughout the school year, a second survey will be distributed to you. The purpose of the second questionnaire will be for you to describe any changes you may have noticed in your child's food habits resulting from exposure to the Foodstyles:K program over the school year.

Your child's participation will involve an individual interview with the researcher. Each child will be asked two questions during the interview. First, to sort a variety of foods, represented by food models, into familiar and unfamiliar categories. Second, to indicate which foods he/she is willing to eat. This process will take approximately 5-10 minutes for each child and will be conducted both early in the school year and again near the end of the school year. This study will not influence your child's evaluation by his/her teacher.

Below is a consent form for you to complete, sign and return with the completed questionnaire in the envelope provided. Upon our receipt of the completed and signed form, it will be assumed that you have given permission for your child to participate in this evaluation.

You may be assured that all the information you provide will be completely confidential. You may refuse to participate or withdraw from the study at any time without prejudice. If you wish to comment on any questions, or qualify your responses, please feel free to use the space in the margins. Your additional comments will be taken into consideration.

Thank you for your participation in this project.

CONSENT FORM	
<p>I, _____, do/do not (circle one) give consent for my <small>First and Last Name of Parent/Guardian</small></p> <p>child _____, to participate in two 5-minute interviews for this <small>First and Last Name of Child</small></p> <p>evaluation of the nutrition education program, Foodstyles:K, during the 1990-1991 school year.</p>	
<p>_____ <small>Signature of Parent/Guardian</small></p>	
<p><input type="checkbox"/> I acknowledge receipt of a copy of this consent form.</p>	

APPENDIX 12. (cont'd) Parental Pretest QuestionnaireCONSENT FORM AND QUESTIONNAIRE

CONSENT FORM

I, _____ do/do not (circle one) give consent for my
 First and Last Name of Parent/Guardian
child _____ to participate in two 5-minute interviews for this
 First and Last Name of Child
evaluation of the nutrition education program, Foodstyles:K, during the 1990-1991 school year.

Signature of Parent/Guardian

☐ I acknowledge receipt of a copy of this consent form.

***** Please complete, sign and return as soon as possible in the self-addressed, stamped envelope provided. *****

APPENDIX 12. (cont'd) Parental Pretest Questionnaire

INFORMATION ABOUT YOUR CHILD

1. Child's record number _____

2. Child's sex Male _____ Female _____

3. Child's age _____ years

4. Does this child have brothers or sisters living at home?

_____ Yes
_____ No

If yes, how many brothers or sisters live at home?

Number of older brothers or sisters _____
Number of younger brothers or sisters _____

5. Has your child previously attended an organized daycare program?

_____ Yes
_____ No

If yes, are you aware of nutrition information being introduced to your child where he/she previously attended?

_____ Yes
_____ No

6. Since cultural background may greatly influence food choices, please indicate your child's ethnic background (eg. Spanish, Chinese, East Indian).

Over →

APPENDIX 12. (cont'd) Parental Pretest Questionnaire**INFORMATION REGARDING FOOD RESTRICTIONS**

The information you supply in this section will ensure that your child will not be offered foods that may be harmful to him/her.

7. Does your child have food allergies?

☐ Yes
☐ No

If yes, please describe. _____

8. Does your child have special dietary restrictions (for example: meat-free, milk-free, wheat-free diets; food restrictions due to religious practices)?

☐ Yes
☐ No

If yes, please describe. _____

9. Does your child have a medical condition that affects his/her food intake (for example: diabetes; PKU)?

☐ Yes
☐ No

If yes, please describe. _____

APPENDIX 12. (cont'd) Parental Pretest QuestionnaireGENERAL INFORMATION REGARDING FOOD INTAKE

In this final section of the survey, your responses will be used to construct an evaluation of kindergarten childrens' attitudes toward foods. Your responses will provide valuable information in a field of research where very little data presently exist.

	<i>strongly agree</i>	<i>somewhat agree</i>	<i>neutral</i>	<i>somewhat disagree</i>	<i>strongly disagree</i>
10.(a) My child is willing to eat a wide VARIETY of foods.					
10.(b) My child is willing to eat UNFAMILIAR foods.					

Over →

APPENDIX 12. (cont'd) Parental Pretest Questionnaire

11. Is your child willing to eat the following foods?

	YES	NO	DON'T KNOW
White fish.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shrimp.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicken drumstick, fried.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Eggs, fried.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lima beans.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broccoli, cooked.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carrots, cooked.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cole slaw.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cottage cheese.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swiss cheese.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt, plain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cornflakes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cornbread.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spaghetti.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tortilla, flour.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for your cooperation in completing and returning this survey.

APPENDIX 13. Monthly Telephone Queries to Teachers of Control Classes
CONTROL GROUP

1. Have you introduced any foods to the children?

_____ YES

_____ NO--GREAT!!!!

2. Which foods have been introduced?

_____	_____
_____	_____
_____	_____
_____	_____

3. How was the food presented to the children?

FOOD**PRESENTATION/DISCUSSION**

**THANKS FOR YOUR HELP AND
PARTICIPATION!!!!!!**

APPENDIX 14. Monthly Telephone Queries to Teachers of Intervention Classes**INTERVENTION GROUP**

1. Have you introduced any of the 8 test foods?

____ YES ---> Q.3
____ NO ---> Q.2

2. If no, when will you be introducing the test foods?

3. Please list the foods you have introduced to the children in the past month.

4. Did you use the "Mystery Food" activity with these foods?

____ YES
List foods: _____

____ NO

5. Did you use the "Who Am I?" activity with these foods?

____ YES
List foods: _____

____ NO

NO _____
YES _____

_____ YES
List foods: _____

_____ NO

_____ YES _____ NO
List foods: _____

APPENDIX 14. (cont'd) Monthly Telephone Queries to Teachers of Intervention Classes

11. Do you make use of the "I Tried It" Class Club activity?

_____ YES

_____ NO

12. How many of the children were willing to taste the food presented?

FOOD	ALMOST ALL	ABOUT HALF	LESS THAN HALF
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

13. Have you introduced any foods other than the test foods?

_____ YES

_____ NO

List foods: _____

**THANKS FOR YOUR HELP AND
PARTICIPATION!!!!**

APPENDIX 15. Parental Posttest Questionnaire

Cover Letter to Parents of Children in the Control Group

May, 1991

Dear Parents:

The end of the school year is approaching and so is the conclusion of our study, An Evaluation of Foodstyles:K. The posttest interviews will be conducted shortly to assess any changes since last September in your child's willingness to try a variety of foods.

At the start of the school year we contacted you for baseline data regarding your child's food history. Over the school year your child has participated in the "control" group of this study. These students have provided us with useful information on changes in attitudes towards food during the natural development of kindergarten children. Now, we would appreciate your comments regarding changes you may have noticed in your child's food habits over the school year. You may refuse to answer any questions in this survey or withdraw from the study without prejudice.

Please find enclosed a self-addressed, stamped envelope for you to return this survey directly to us. Should you have any questions, please phone 228-2502 to leave a message with the departmental secretary for Gail Hammond and you will be contacted shortly thereafter.

We would like to take this opportunity to thank you for allowing your child to participate in our study and for your valuable input in both the pretest and posttest questionnaires.

Sincerely,

Gail Hammond, B.Sc.
Masters Student

Susan I. Barr, Ph.D.

Linda J. McCargar, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

APPENDIX 15. (cont'd) Parental Posttest Questionnaire

Cover Letter to Parents of Children in the Intervention Group

May, 1991

Dear Parents:

The end of the school year is approaching and so is the conclusion of our study, An Evaluation of Foodstyles:K. The posttest interviews will be conducted shortly to assess any changes since last September in your child's willingness to try a variety of foods.

At the start of the school year we contacted you for baseline data regarding your child's food history. Over the school year your child has participated in the "intervention" group of this study. These students have been exposed to nutrition education through the Foodstyles:K program and have provided us with useful information on changes in attitudes towards foods. Now, we would appreciate your comments regarding changes you may have noticed in your child's food habits over the school year. You may refuse to answer any questions in this survey or withdraw from the study without prejudice.

Please find enclosed a self-addressed, stamped envelope for you to return this survey directly to us. Should you have any questions, please phone 228-2502 to leave a message with the departmental secretary for Gail Hammond and you will be contacted shortly thereafter.

We would like to take this opportunity to thank you for allowing your child to participate in our study and for your valuable input in both the pretest and posttest questionnaires.

Sincerely,

Gail Hammond, B.Sc.
Masters Student

Susan I. Barr, Ph.D.

Linda J. McCargar, Ph.D.

Gillian Ackhurst, B.H.E.
Nutrition Educator

APPENDIX 15. (cont'd) Parental Posttest QuestionnaireEVALUATION OF THE FOODSTYLES:K NUTRITION EDUCATION PROGRAM

This study was initiated to evaluate the effectiveness of the Foodstyles:K nutrition education program, designed by the B.C. Dairy Foundation, in developing good food habits in the kindergarten child.

At the start of the school year you may recall completing a preliminary survey regarding your child's food habits. This information provided us with baseline data that allowed us to gain knowledge about kindergarten childrens' food habits. Upon completion of this second and final survey, the information you provide now will allow us to assess any changes since last September in the food habits of your child. Without this information, an essential component of our study will be missing. We would appreciate your answering all questions and returning the completed questionnaire directly to our office in the stamped, self-addressed envelope provided. However, you may refuse to answer any questions or withdraw from the study without prejudice. This survey should require 5-10 minutes to complete.

You may be assured that all information you provide will be completely confidential. A record number will be used for each child. This will facilitate checking your child's name from the class list upon receipt of your completed questionnaire.

1. Child's record number _____

	strongly agree	somewhat agree	neutral	somewhat disagree	strongly disagree
2.(a) My child is willing to eat a wide VARIETY of foods.					
2.(b) My child is willing to eat UNFAMILIAR foods.					

Over →

APPENDIX 15. (cont'd) Parental Posttest Questionnaire

3. Is your child willing to eat the following foods?

	YES	NO	DON'T KNOW
White fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shrimp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chicken drumstick, fried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Egg, fried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lima beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broccoli, cooked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carrots, cooked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cole slaw	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cottage cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swiss cheese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Milk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yoghurt, plain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cornflakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cornbread	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spaghetti	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tortilla, flour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 15. (cont'd) Parental Posttest Questionnaire

4. When requesting food(s), has your child mentioned his/her exposure to the foods(s) at school?

_____ YES, please proceed to question 4(a).

_____ NO, please proceed to question 5.

- 4.(a) Please indicate the food(s) your child has requested as a result of exposure at school.

_____	_____
_____	_____
_____	_____

5. Have you noticed any changes in your child's food habits over the past school year?

_____ YES, please proceed to question 5(a).

_____ NO.

- 5.(a) Please describe any changes you have observed in your child's food habits over the past school year.

Thank you for your participation in this evaluation.

APPENDIX 16. Teacher Descriptions of the "Other" Method they Reported Using to Teach Foodstyles:K**Category: Augmentation of a nutrition theme**

- 1 I did a theme on nutrition and picked appropriate material from the kit to go along with it.
- 2 Nutrition theme month of March
- 3 Currently using Foodstyles:K in a food theme.
- 4 I am doing a food theme and do a variety of activities using assorted food. Twice or three times a week I say that I brought a "Mystery Food" to school. We play a guessing game, taste the food then do the page.
- 5 I am doing a 4 week nutrition theme and am mainly using the recipes and "I Tried It" stickers.
- 6 Incorporated into a health and nutrition unit and then continued at snack time for the remainder of the year.

Category: Incorporation of Foodstyles:K into general classroom themes

- 7 I use those foods that relate to the themes I am teaching. eg. Theme "The Farm" then I used dairy products. For my theme on Easter, I used the egg activities.
- 8 Integrated within a theme.
- 9 I incorporate the pages, stickers, etc., with themes and cooking experiences. For eg. fish when we are studying bears.

Category: Use of Foodstyles:K worksheets after cooking

- 10 I used it along with other nutrition activities, and tied it into cooking lesson.
- 11 I used your worksheets to reinforce the children's concept of foods. The sheets were helpful after our cooking and tasting activity.

APPENDIX 16. (cont'd) Teacher Descriptions of the "Other" Method they Reported Using to Teach FoodstylesK**Category: Use of Foodstyles:K in a nutrition health unit**

- 12 I use it a part of a unit on "Me" where I include health nutrition likes/dislikes, etc.
- 13 I have done a nutrition unit with the kindergarten for a few years and have incorporated Foodstyles into my unit. The ideas, pictures are very useful. The children at this school are particularly capable and I carry the program a step further into classification of foods into food groups. The children have no problem classifying foods. I usually do the nutrition theme for 3-4 weeks in the Spring and then we continue to classify our snacks to the end of the year. We cook occasionally throughout the year.

APPENDIX 17. Teacher Descriptions of the "Other" Method they Reported Using in Conjunction with Teaching Foodstyles:K on It's Own, in Some Classroom Activities, or in All Classroom Activities

METHOD OF TEACHING FOODSTYLES:K = At times on it's own and at other times using an "other" method herein described. (n=4)

- 1 To augment the learning in our weekly cooking classes (we cook snack for that day). If any of the foodstyle sheets relate to our food choice we incorporate it into our learning experience.
- 2 I used it as a unit on nutrition therefore all activities and centres were of a nutritional subject.
- 3 I teach cooking once a week to both of my kindergarten classes. I have used many Foodstyles:K recipes very successfully.
- 4 I use it as a unit. Stands on its own.

METHOD OF TEACHING FOODSTYLES:K = At times in some classroom activities and at other times using an "other" method herein described. (n=11)

- 5 For apples, only #3 would be applicable as they are used as a complete theme / other foods not so extensively
- 6 I use some of Foodstyles:K during a nutrition unit in winter, and when introducing new foods.
- 7 Some of the ideas adapted to use with other than foods.
- 8 Theme related with restaurants. A different food is featured every day at the restaurant. Also nutrition is being discussed.

APPENDIX 17. (cont'd) Teacher Descriptions of the "Other" Method they Reported Using in Conjunction with Teaching FoodstylesK on It's Own, in Some Classroom Activities, or in All Classroom Activities

METHOD OF TEACHING FOODSTYLES:K = At times in some classroom activities and at other times using an "other" method herein described. (cont'd)

- 9 I use it in my integrated theme on "nutrition" and when I am cooking in other themes such as making porridge in the fairytale unit.
- 10 Use "I Tried It" stickers for other taste experiences.
- 11 As a part of my themes. ie. apples in my apple theme, rice in Chinese New Year, bread in "Little Red Hen" theme, broccoli for the letter "B", cereal for the "Three Bears".
- 12 I use the nutrition theme in March. Foodstyles is part of my program.
- 13 At times in conjunction with our weekly cooking program (ie. when our recipe included on of the Foodstyles:K foods.)
- 14 The foods chosen are often drawn from (related to) the theme being studied as much as possible.
- 15 We are a multigrade year 1, 2 ,3. Pilot class K, 1, 2.

METHOD OF TEACHING FOODSTYLES:K = At times into all classroom activities and at other times using an "other" method herein described. (n=5)

- 16 I incorporate many foods not in the kit but in some way related to themes focussed on. eg. Mexican fruits & vegetables when theme is Mexico.
- 17 I did not always use the suggested foods, but made substitutions. We did not use the record sheets.
- 18 I use vegetables & fruits thematically, eg. eggs with Spring; picnic mix for trip to pond, etc.

APPENDIX 17. (cont'd) Teacher Descriptions of the "Other" Method they Reported Using in Conjunction with Teaching FoodstylesK on It's Own, in Some Classroom Activities, or in All Classroom Activities

METHOD OF TEACHING FOODSTYLES:K = At times into all classroom activities and at other times using an "other" method herein described. (cont'd)

- 19 In conjunction with a specific book "The Enormous Turnip" serve turnip sticks after feeling, smelling, talking about it.
- 20 Nutrition theme, 4 food groups, etc.

METHOD OF TEACHING FOODSTYLES:K = At times on it's own and at other times into some classroom activities or using an "other" method herein described. (n=1)

- 21 Two years ago I did it on it's own. This year I am incorporating it into my themes. Either way it works well.

METHOD OF TEACHING FOODSTYLES:K = At times on it's own and and at other times into all classroom activities or using an "other" method herein described. (n=5)

- 22 I use methods 1 and 3 depending on the themes I am teaching and how it fits.
- 23 I photocopy the booklet with some changes of my own and each child uses the booklet when trying foods.
- 24 It varied with the food item we were studying.
- 25 We cook every Thursday in our class. I do nutrition as a theme in November. We also look at some foods. We discuss nutrition on an ongoing basis.
- 26 A poem has a "sticky date" - date was introduced while baking gingerbread man - ginger root shown, powder smelled, some tasted. Peanut butter - made butter. Daily stress: healthy snacks fruit, vegetables, nuts.

APPENDIX 17. (cont'd) Teacher Descriptions of the "Other" Method they Reported Using in Conjunction with Teaching FoodstylesK on It's Own, in Some Classroom Activities, or in All Classroom Activities

METHOD OF TEACHING FOODSTYLES:K = At times into some classroom activities and at other times into all classroom activities or using an "other" method herein described. (n=3)

- 27 Incorporated into a theme such as Thanksgiving, Hallowe'en, Farms, Easter.
- 28 Depends on the theme being taught and whether the Foodstyles material can be completely integrated.
- 29 #2 and #3 used during "apples" theme and then "nutrition" theme. "I Tried It" stickers used throughout the year. I use the program during the time that I do the above mentioned theme but I do not teach it as it is intended. I use parts of it.

METHOD OF TEACHING FOODSTYLES:K = At times on it's own and at other times into some classroom activities or into all classroom activities or using an "other" method herein described. (n=1)

- 30 For parent presentations.

APPENDIX 18. List of Foods Requested by Children as Reported by Their Parents (Control Group)

CONTROL GROUP	Food Requested	Food Requested	Food Requested
Child #1	fish	chicken	carrots
Child #2	donuts	macaroni	Kentucky Fried chicken
Child #3	hard eggs	raw carrots	
Child #4	chicken; eggs	carrots	milk; yoghurt
Child #5	cottage cheese; yoghurt	milk; chicken	noodles; fish
Child #6	cupcake; cookies	popcorn; sandwiches	pancakes; applesauce; gingerbread
Child #7	potatoe pancakes	T-rex burgers	wontons
Child #8	chicken soup		
Child #9	pineapple	kiwi	
Child #10	cheese; crackers; pickles	honey	pizza with spaghetti; cheese; meatballs
Child #11	different breads	granola mix	soup
Child #12	strawberry juice		

APPENDIX 19. List of Foods Requested by Children as Reported by Their Parents (Intervention Group)

INTERVENTION GROUP	Food Requested	Food Requested	Food Requested
Child #1	tortilla		
Child #2	tortilla	coleslaw	
Child #3	crackers	cookies	chips
Child #4	cornbread		
Child #5	tortillas w/ jam	yoghurt w/ fruit	
Child #6	scrambled eggs in "folded" bread		
Child #7	cottage cheese		
Child #8	cottage cheese on a cracker		
Child #9	does <u>NOT</u> want to eat coleslaw	no requests	
Child #10	does <u>NOT</u> want to eat coleslaw	no requests	
Child #11	pita bread		
Child #12	broccoli	carrots	
Child #13	cottage cheese	yoghurt	

APPENDIX 19. (cont'd) List of Foods Requested by Children as Reported by Their Parents (Intervention Group)

INTERVENTION GROUP	Food Requested	Food Requested	Food Requested
Child #14	broccoli; raw carrots	cottage cheese; yoghurt (plain)	cornflakes
Child #15	cottage cheese	cornflakes	
Child #16	yoghurt		
Child #17	something sweet w/ peanuts		
Child #18	salad	peanut butter	cereal
Child #19	yoghurt	tortilla	
Child #20	dried soup noodles		
Child #21	muffins	corn	
Child #22	cornbread		
Child #23	string cheese	jello jigglers	veggies/dip
Child #24	apple w/ peanut butter on it		
Child #25	kiwi; yoghurt	bagels	honeydew melon
Child #26	cornflakes		
Child #27	kiwi fruits	yoghurt	

APPENDIX 19. (cont'd) List of Foods Requested by Children as Reported by Their Parents (Intervention Group)

INTERVENTION GROUP	Food Requested	Food Requested	Food Requested
Child #28	fish steak; cereal; yoghurt	vegetable; soup	fresh fruit eg. honeydew melon
Child #29	cottage cheese		
Child #30	pita bread		
Child #31	trail mix	tuna salad	
Child #32	fruit kebabs	cranberry sauce	apple sauce
Child #33	celery w/ peanut butter		
Child #34	pizza	yoghurt	coleslaw

w/ = with

APPENDIX 20. Noticeable Changes in Childrens' Food Habits Over the School Year as Reported by Their Parents (Control Group)

CONTROL GROUP	CHANGES NOTED	CHANGES NOTED
Child #1	more veggies more junk food	more willing to try new foods
Child #2	no longer eats carrots	used to eat fish, now only sometimes
Child #3	doesn't like to eat anything	
Child #4	eats most of what is given	
Child #5	eats more uncooked fruits & vegetables	loves any kind of cheese
Child #6	eats lots of fruits but not veggies	more willing to eat cold foods eg. sandwiches; cold meat; rolls
Child #7	not so easy to try new foods	
Child #8	more willing at least to taste a new food	eats more variety at breakfast
Child #9	more set in likes & dislikes	tries lots of vegetables
Child #10	willing to eat things that brother & sister don't like	
Child #11	more willing to try different foods esp. ones she didn't like before	
Child #12	more willing to try new foods	
Child #13	rarely comments negatively, used to constantly complain	more structured in eating habits eg breakfast, lunch, supper
Child #14	much better appetite	eats foods he won't eat before

APPENDIX 20. (cont'd) Noticeable Changes in Childrens' Food Habits Over the School Year as Reported by Their Parents (Control Group)

CONTROL GROUP	CHANGES NOTED	CHANGES NOTED
Child #15	tries more different things	
Child #16	tries new things	will like a food "all the time" if she's seen others like it
Child #17	eats more now	
Child #18	eats more now	tries to eat everything like vegetables
Child #19	more willing to try a wider variety of foods	
Child #20	tries to eat foods from the different food groups	knows the food groups; eats more cooked vegetables
Child #21	eats more	
Child #22	willing to try more foods	eating more & better
Child #23	eats a bit more than before	

APPENDIX 21. Noticeable Changes in Childrens' Food Habits Over the School Year as Reported by Their Parents (Intervention Group)

INTERVENTION GROUP	CHANGES NOTED	CHANGES NOTED
Child #1	used to eat cheese & bread	needs snacks now
Child #2	eats small amounts, but more frequently	
Child #3	more aware of healthy snacks eg. fruit	
Child #4	more willing to try new foods	
Child #5	little more fussy	likes a snack before bed because she's hungry
Child #6	often asks if food is good for you; if yes, tends to enjoy it more	
Child #7	more interest in trying different things eg. relish & mustard instead of just ketchup on hot dog	
Child #8	willing to try a new food - doesn't necessarily end up liking it	
Child #9	more willing to try a new food	
Child #10	wants to eat all the time	eats a lot more fruit
Child #11	more willing to try new foods	
Child #12	eats canned pasta & meats; eats more varieties of cheese	eats more radishes; beef; and pork (loves animal fat)
Child #13	willing to try more foods	

APPENDIX 21. (cont'd) Noticeable Changes in Childrens' Food Habits Over the School Year as Reported by Their Parents (Intervention Group)

INTERVENTION GROUP	CHANGES NOTED	CHANGES NOTED
Child #14	not as fussy	enjoys eating a wider variety of foods
Child #15	likes Caesar salad; corn; strawberries	prefers macaroni noodles instead of spaghetti
Child #16	eats a few more fruits	liked the cornbread
Child #17	willing to try more foods & to eat a greater variety of foods	
Child #18	more variety now	sometimes tries new foods
Child #19	more willing to finish meals even if he doesn't like it	
Child #20	previously disliked foods are now liked eg. mushrooms; salad; eggs	
Child #21	more willing now to accept meals as they are prepared	
Child #22	increased appetite	likes raw veggies & dip
Child #23	increased appetite	more willing to try new foods; willing to eat a wide variety of foods
Child #24	eats a wider variety of raw vegetables; fruits & cheese	
Child #25	more willing to try foods	before this program he would refuse to sample foods
Child #26	willing to try different fruits & foods he has never had before	

APPENDIX 21. (cont'd) Noticeable Changes in Childrens' Food Habits Over the School Year as Reported by Their Parents (Intervention Group)

INTERVENTION GROUP	CHANGES NOTED	CHANGES NOTED
Child #27	likes to try different foods; eats more veggies & fruit	suggests foods for meals at grocery store
Child #28	more suspicious of unfamiliar foods, but says he tries new foods at school	more adamant about not eating certain things
Child #29	eats more homemade pasta	eats cucumber; bananas; cheese & crackers
Child #30	willing to sample some new foods	
Child #31	a very fussy eater	perhaps some improvement in attitude about trying new foods
Child #32	trying more new foods, or requesting to try new foods which she did not do before	

APPENDIX 22. Glossary

Attitude	- an internal state which affects an individual's choice of action toward some object, person or event (AECT, 1977).
Concrete Operational	- a stage of the Piagetian cognitive development that follows the preoperational stage. It is characterized by a need to anchor thoughts to concrete events and occurs from approximately 7 to 11 years of age.
Daycare	- centres which provide supervision and facilities for preschool children during the day in a relatively noneducational, unstructured manner.
Early childhood-	the time from birth to 6 years of age.
Education	- the aggregate of all the processes by means of which a person develops abilities, attitudes, and other forms of positive behaviour of positive value in the society in which the individual lives.
Episodic memory	- the storage and retrieval of specific events that once happened at a certain time and place (Kastenbaum, 1979).
Formal	- in Piaget's model, it is the most advanced stage of thinking, emerging between 11 and 14 years of age. The main characteristic is the ability to think about abstractions.
Kindergarten	- a semi-structured class lead by a professionally trained teacher, sponsored by the public school system, located in an elementary school for children usually from 5 to 6 years of age.
Knowledge	- a cognitive objective which emphasizes the remembering, either by recognition or recall, of ideas, material or phenomena; knowledge involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure or setting (AECT, 1977).
Nursery school	- government sponsored play groups for young children (3-4 years) in which the emphasis is placed on the "whole child," teaching children to get along with other children and adults and encouraging children to have fun.
Nutrition behaviour	- patterns of activity directed towards the intake of food (Johnson and Johnson, 1985).
Nutrition education	- the process by which beliefs, attitudes, environmental influences, and understandings about food lead to practices that are scientifically sound, practical, and consistent with individual needs and available food resources (American Dietetic Association, 1973).
Precausal reasoning	- characteristic of a kindergarten child's cognitive preoperational stage. The inability to distinguish between psychological and physical causes, and between subjective experiences and objective events (Scarr et al., 1986).

Preschool	- generally, a semi-structured educational class lead by an early childhood educator, located outside an elementary school and having little or no affiliation with the public school system. Attendance at a preschool may precede attendance at an elementary school.
Preschoolers	- children aged 2 to 6 years, inclusive.
P-1 (Primary-1)	- a new term defined by the British Columbia government, Ministry of Education, to replace the term kindergarten in all British Columbia schools.
Program evaluation	- the process of improving a program through application of analytical and empirical methods to examine the resources and expenditures involved in attaining the programs intentions (Hanson and Schutz, 1981).
Prosocial behaviour	- behaviour that benefits or aids another person (Scarr et al., 1986).
Quasi- experimental	- an approximation to an experiment in which there is some loss of control over the independent variables due to the real-life research manner in which they are defined. It involves the use of intact groups of subjects rather than assigning subjects at random to experimental treatments (Wiersma, 1986).
Semantic memory	- an individual's system for storing and utilizing information (Kastenbaum, 1979).
Value	- any characteristic deemed important because of psychological, social, moral or aesthetic considerations (AECT, 1977).