AN EVALUATION OF A SERIES OF HOMEMAKING CLASSES IN PROVIDING NUTRITION EDUCATION FOR WOMEN ON PUBLIC ASSISTANCE

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Patricia Wolczuk

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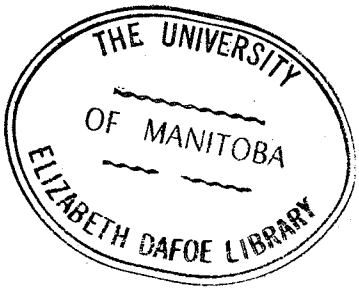

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Homemaking classes, conducted by the Welfare Department of the City of Winnipeg for homemakers receiving public assistance, were evaluated concerning help given the homemaker to make food choices appropriate to fulfilling her family's nutritional needs. Homemaker knowledge of general nutrition information and of Canada's Food Guide, homemaker food choice, and non-class factors used in the evaluation were recorded with an interview schedule administered prior to and after a ten-week course attended by twenty-seven homemakers. The degree of concern of the homemaker, level of living, and clean - neatness of the home were considered to determine their relevance to level attained in both knowledge and food choice.

Pre-course, only 22.2 percent were considered to have an adequate general knowledge of nutrition as compared to 44.4 percent post-course. The greatest gains in general knowledge were experienced by younger homemakers, less highly educated homemakers, homemakers who had no previous exposure

to nutrition information, those with smaller families, and those homemakers who had been on welfare for the longest time.

Before the course, only one of the twenty-seven homemakers was familiar with over half of the content of Canada's Food Guide, whereas, after the course, twelve of the twenty-seven were considered to be well-informed. The largest increases occurred with younger homemakers, more highly educated homemakers, those having had previous exposure to nutrition information, and homemakers with the largest number of young children.

Food choices of the homemakers, rated by a twenty-four hour recall on the basis of Canada's Food Guide, indicated the presence of over fifty percent of the recommended items in only one-third of the instances both prior to and following course participation. Increases in mean scores were restricted to younger homemakers, homemakers who had previous exposure to nutrition information or had been on welfare for a short period of time.

Levels attained in knowledge were not considered related to degree of concern, clean - neatness, or level of living. However, higher food choice ratings did occur with homemakers having a higher degree of concern.

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INTRODUCTION

Poverty is presently in national focus. Widespread concern about poverty has stimulated public service personnel to investigate the deficiencies, discrepancies, and difficulties of the poor as related to home and family life.

Fulfillment of basic needs may be unattainable to those of limited resources. Food is a primary concern. If income is severely limited, the family's resources available for food expenditure inevitably are restricted and appropriate food choice becomes critical in the maintenance of a nutritious diet. Jean Mayer, Special Consultant on Nutrition to the President of the United States, stated: "The poor suffer because their limited food budget allows them little room for mistakes" (24). Avoidance of such mistakes in food selection by the homemaker can only occur if she has the appropriate "know how" at her disposal. She must attain the necessary knowledge to make correct food selections on her limited food budget. She must, therefore, be exposed to a situation conducive to learning the food choices appropriate to fulfilling her family's nutritional needs.

Members of certain specific groups - infants, growing children, and pregnant and nursing women - are particularly vulnerable to inadequate nutrition. The results of improper nutrition are more devastating and permanent within these groups. When this increased susceptibility is coupled with

poverty, the problem is compounded. Such is the case of the homemaker on welfare. Possibly an adolescent herself, generally the mother of young children, this homemaker is often the head of the household and sole decision-maker. She is responsible for her family's food. Proper food selection is vital to the well-being of her family, but difficult due to limited resources and knowledge.

The modes of nutrition education directed toward her are multitudinous. Lack of motivation and interest, conflicting goals, inadequate participation, and failure to apply learned principles have been encountered by educators in approaching these homemakers. The use of home economists, homemaking classes, homemaker-aides, pamphlets, brochures, and flyers, radio, television and newspapers have been explored, some superficially, some extensively, for the education of welfare homemakers.

Success of the various programmes is questionable. The recent United States National Nutrition Survey showed dietary deficiencies of low-income families in 1965 were similar to those in 1955 (2). Studies (3, 14, 19, 26, 28) in the past few years indicate children in low-income urban areas are still inadequately nourished. There is no information showing substantial increases in the level of nutrition knowledge of today's homemakers nor indications of better dietary practices (8, 17, 49). Welfare recipients still express difficulties with food budgeting. Yet, education

programmes are continuously being initiated, subjected to cursory informal examination, and perpetuated for the "good" of the homemaker without some empirical assessment of their usefulness. Unless formal evaluation is attempted, gains made as a result of nutrition education programmes are unknown and questionable. This is unsatisfactory. If programmes are successful, similar educational services should be expanded, but, if they are ineffective, revisions must be undertaken.

Homemaking classes are conducted by the Welfare Department of the City of Winnipeg for homemakers receiving public assistance. The purpose of this course is to improve the food selection practices of the enrolled homemakers using the principle that participation leads to practice.

This study is an evaluation of these classes in raising the level of nutrition knowledge of these welfare homemakers and in aiding them to make proper food choices for their families. Variations in the degree of impact of the course will be related to certain homemaker characteristics. These homemaker characteristics, homemaker knowledge, and practices were recorded with an interview schedule conducted prior to and after a ten-week course attended by twenty-seven homemakers.

REVIEW OF LITERATURE

IMPLICATIONS OF POVERTY CONCERNING FOOD

In Canada, there are three common strata based on annual income: low income from $3000-$5999, middle income from $6000-$9999, and upper income over $10,000 (11). The family with an income below $3000 annually falls into the poverty bracket. Such a restricted income limits available resources for consumption expenditure. Proportionate food expenditure correlates negatively with income. Families in the poverty bracket may spend 32.8 percent of their income on food as compared to the upper income family which may spend 17.2 percent of their income on food (11). Food, for these impoverished families, may become the major expenditure.

In spite of this proportionately higher food expenditure, those in the poverty bracket generally are not well fed. The United States National Nutrition Survey in 1965 showed nearly forty percent of the households with incomes below $3000 had poor diets (2). A diet was graded poor if it contained less than two-thirds of the Recommended Dietary Allowances for at least one nutrient. Poor diets occurred four times more frequently among poor households than among households with incomes above $10,000. Diets of those in the poverty bracket were deficient in one or more nutrients in sixty-three percent of the cases as compared to deficiencies

of one or more nutrients in only thirty-two percent of the upper income households.

The trend indicated by this household survey stimulated more thorough investigations of the nutritional status of urban dwellers. The diets of children were of particular concern as indicators of community status.

A study (3) of New York City school children conducted in 1967 showed children of low socioeconomic status with vitamin deficiencies and corresponding imbalances in food patterns. Low riboflavin, pyridoxine, cobalamin, nicotinic acid, and ascorbic acid were common; dietary patterns indicated low intakes of citrus fruit, meat, milk, green and yellow vegetables. Of these same children's diets, 73.2 percent were considered to be poor. Excellent diets were present only half as frequently with children from welfare families (9). Using cluster analysis on this information, Ziffer et al (51) determined that eighty percent of the children having decreased skinfold thickness, low ascorbic acid, nicotinic acid, and cobalamin intakes, and low citrus and meat intakes, were from families receiving welfare assistance. The majority of children with below average size and weight, low pyridoxine, cobalamin, and riboflavin intakes, and poor diet histories, were from families in which the mother was the sole wage earner.

The diets of poor families in Mississippi were shown to be less than the recommended dietary levels (14). About

forty percent of the families ate less than two-thirds of the recommended amount of protein. Eighty percent of the families had no milk and ninety percent had no citrus fruit in the twenty-four hour survey period.

A recent study (28) on the diets of preschool Mississippi children of lower socioeconomic status showed these diets were notably lower in calories, protein, calcium, iron, vitamin A, and thiamine than those of children of higher socioeconomic status. The authors concluded that the poverty children appeared to be more at risk biochemically than more affluent children due to their dietary deficiencies.

Similarily, the diets of preschool children in Nebraska whose families were receiving public assistance were poorer than those of children of higher socioeconomic levels (19). The major caloric source was breads and cereals as compared to dairy products for the upper income group. Conversation with the adults responsible for the children's food indicated that the findings reflected a well-established pattern of intake.

In 1968, Myers et al (26) surveyed the diets of children from a depressed urban area of Boston. Twenty-eight percent of the surveyed families were on welfare. The children from these families were found to have intakes low in protein-rich foods, citrus fruits, and yellow and green vegetables. Indications were of a correlation between low income and inadequate dietary intake. The researchers

concluded:

> "The results of the study indicate a need for interest in the nutritional intakes of economically deprived children living in urban situations characterized by social disorganization, limited educational climate, and apathy. If these data are representative, it would appear that nutritional education efforts made by various agencies and individuals have made little impression on this urban economic level. There is a need for revival of interest in health and nutrition education and training" (26).

Such nutritional deficiencies and poor diets suggest waste; resources are expended with inadequate results. Such a waste of limited resources might be eliminated by improving the results of the expenditure, that is, improving the quality of the diets within the poverty group. As the homemaker is the principal food buyer for the family, more attention must be directed to insuring that she can make proper food choices to satisfy her family's nutritional requirements.

NEEDS OF THE HOMEMAKERS CONCERNING NUTRITION EDUCATION

In recent years, attempts have been made to determine the extent of the nutrition knowledge of the homemaker. Young et al (50) investigated the nutrition knowledge of New York homemakers and concluded that only about a quarter of them had even a fair understanding of nutrition as related to feeding their families. No consistent relationship was found between family income and nutrition knowledge. Nutrition knowledge increased with increasing educational attainment

and decreased with increasing age. Only twenty to thirty percent gave evidence of planning their meals on the basis of some real knowledge of nutrition. The greatest need was for information regarding ascorbic acid - rich and carotene - rich fruits and vegetables, the adult need for milk, and the nutritional value of breads and cereals.

Jenkins (16) surveyed British homemakers and found rural residents inclined to believe in folk sayings and advertising claims such as lemon juice is good for slimming. These homemakers had only moderate knowledge of food sources of protein, iron, carbohydrates, and a slight knowledge of calcium and ascorbic acid sources. These results were similar to those amongst urban housewives for extent and correctness of nutrition knowledge. Using the same questionnaire, Brown et al (8) concluded that the nutrition knowledge of the urban homemakers surveyed was not very extensive, and in some cases, quite wrong.

Similarily, a survey (10) of low income urban families in Washington, D.C. showed that these families had insufficient information concerning the essentials of an adequate diet. Only thirty-four percent of the interviewees were considered to have an adequate knowledge of nutrition.

Such research indicates inadequacies in the level of nutrition knowledge of homemakers; trends indicate poor practices and inappropriate food choices. These same researchers posed queries concerning the effect of the

acquisition of nutrition knowledge on food selection.

Jenkins (17) affirms that folk beliefs had considerable effect on food choice, for example, a preference for white versus brown eggs. Brown et al (8) showed that factual information does not necessarily guarantee good food purchasing. For example, although housewives knew brown bread was better than unenriched white bread, they still purchased white. However, Young et al (49) determined that food choices of New York homemakers were rated considerably better than their theoretical nutrition knowledge. If the food group was unfamiliar to the homemaker, usage was restricted. A higher level of educational achievement correlated to greater variety in diets and an increased number of food groups used. Again, as incomes increased, adequacy of food choice also increased.

The importance of money versus knowledge as a more decisive factor in food choice has been queried. Dr. George V. Mann, a Career Investigator for the U.S. National Heart Institute in the Nutrition Division of Vanderbilt University (23), in a recent article on nutrition education, contended that many United States homemakers are too poorly informed to select an adequate diet even with an adequate income. He also stated that the principal causes of malnutrition in the United States were nutritional ignorance and misinformation rather than poverty.

In addition, a recent study (4) compared the

shopping practices of senior home economics students and low-income homemakers. When given lists of food items to purchase, the students could not buy the foods as economically as the homemakers using the same list. The low-income homemakers could not, however, plan as nutritious a menu, nor compose as complete a list of required items for a menu plan, as could the students. This study determined that the low-income homemakers required guidance in the decision-making process concerning food choice prior to shopping, rather than buymanship.

PROGRAMMES FOR THE NUTRITION EDUCATION OF HOMEMAKERS

Poor diets, low knowledge levels, and the need for guidance in food selection have prompted home economists and nutritionists to investigate the educational media most suited to improving the food choices of the low-income homemaker. As a result, a variety of nutrition education programmes directed at improving food selection and homemaking practices of low-income homemakers have been initiated.

Evelyn B. Spindler (37) investigating channels used to reach low-income homemakers, contends that these homemakers are not reached by nutrition education material as readily as more affluent homemakers. Generally, the low-income homemaker did not attend meetings, read newspapers, or listen to educational radio and television. Young homemakers

interviewed by her indicated no interest in a radio or television series as they did not have time for television nor did they listen to talk on radio shows. Newspapers were read by some; magazine picture articles appealed to many. These homemakers expressed interest in a series of lectures or lessons, but did not want these lessons to resemble high school home economics classes which they considered irrelevant.

Homemaking classes are a popular mode of nutrition education. Usually, the programme consists of weekly lessons on aspects of homemaking related to food and food costs. Classes are conducted in a central but nearby location thus providing easy access. Enrollment is limited and course content is adapted to homemaker needs with emphasis upon presentation and participation. The material must be useful and meaningful; there is a maximum of doing such that the homemaker hears, sees, and physically attempts the skills discussed in the lessons whether food planning, shopping, or preparation.

In many cases classes are supplemented by additional services. Consultation of food and nutrition experts is available to teaching personnel. Individual counselling is given to class participants. Mass media are employed to stimulate interest in the community and posters and exhibits in community service centers may be utilized. Indigenous leadership developed during classes serves as a stimulus for participation by other homemakers at succeeding classes.

The employment of indigenous personnel is becoming increasingly popular as exemplified by the Homemaker-Aide Service in the United States. This service is considered one of the most effective methods of counteracting poverty as it helps stabilize, unify, and strengthen the family structure (12). Generally, home economists serve as leaders, consultants, and instructors for the aides who actually carry out the programme's home visits to the participating homemakers. Household budgeting, meal planning, good nutritional-value purchasing, efficient cookery, and general nutrition are the core content of the programmes. The aides participate in weekly meetings for lessons on new topics and discussions on weekly progress. Simultaneously, they pay visits to the homemakers offering answers and advice plus conversation and sympathetic listening. Generally, they bridge the cultural gap between the low-income homemaker and the middle-class professional. The homemakers may also concurrently attend classes or participate in discussions covering the same topics and practices which the home economists discuss with the aides. The aides usually keep a log of conditions and practices they observe in order to record the family progress.

EVALUATION OF PROGRAMMES FOR THE NUTRITION EDUCATION OF HOMEMAKERS

The role of nutrition education is to bridge the gap

between the "knowledge of the prevention and treatment of malnutrition and the propagation of this knowledge in terms than can be understood and applied by families for their own well-being" (13). Yet Dr. G.V. Mann (23), in a controversial article calling for a nutrition education renaissance contends that although governmental agencies spend large sums promoting homemaking services, this expenditure is of doubtful value as a large segment of the general public is not reached. If nutrition is considered to be an action science, its principles must be converted to practical applications useful to the general public. If a nutrition education programme is successful in reaching the goal of consumer practice, the nutritionist should be able to verify the achievement.

McKenzie et al (25) contend that much of what has been published concerning nutrition education consists of experiments which have been poorly designed and poorly evaluated. These same authors state that there is little information to confirm that nutrition education has been very successful in improving the diet that people eat. The Food and Agriculture Organization Freedom From Hunger Campaign (13) stated that although education is rarely the only factor influencing dietary trends, food habits can be changed and improved through nutrition education programmes. To assure continued effectiveness, however, these programmes require periodic evaluation and revision. Without such

objective evaluation, the nutrition educator can not effectively determine the efficacy of a nutrition education programme in terms of improved nutritional behavior.

Evaluation of a programme is an effort to determine what changes take place after the programme and what part of these changes can be attributed to the programme. Thus through systematic evaluation, one can determine if a specific programme is useful and should be continued. Specific goals and objectives should be established whereby progress may be measured. Knowledge can be tested by carefully phrased questions; changes in practices can be determined objectively. The ultimate criteria in the evaluation of nutrition education are the desirable changes that have occurred in the food habits of the people (13).

Weeks (47) working with poverty bracket homemakers, half of whom were receiving public assistance, considered homemaking classes to be successful. She stated that there were gains in nutrition knowledge, improvements in food budgeting, meal planning, and household skills, plus increased confidence and participation in community life. However, techniques used to instruct the homemakers varied from one phase of the study to another and from one group to another within the study population. In some cases, individual help supplemented; small groups had additional meetings prior to regular class attendance; older homemakers were reached with home visits and printed materials. The

author stated that no assessment was made of the effectiveness of the methods on an over-all basis. A formal evaluation of the actual classes in improving food choice was not undertaken. Conclusions stressed the need for inter-personnel co-operation plus homemaker motivation and perception of the programmes potential benefits.

Ugelow (44) conducted homemaking classes for young homemakers receiving welfare assistance in Illinois. She reported that the classes were beneficial in developing insights into the problems of these homemakers. The success of the pilot study stimulated the expansion of the programme to forty-six regular meeting groups. Over three thousand mothers had completed the course in a two-year period. The classes were considered to be especially helpful to the young homemaker whose motherhood preceded her homemaking education. Each lesson included student participation in demonstrations as well as discussions. Special lessons were given on budgeting and individual consultations provided if required. Caseworkers reported improvements in home and family life, but specific effects of the programme were not formally assessed. Informal evaluation indicated such classes were an effective means of reaching low-income homemakers, however, conclusions concerning particular assets of the programme were not made.

Innovations accompanying the classes have been successful. The door-to-door flyer campaign in the Weeks

study (47) is an example. Familiarity with the material presented in the flyer was assessed before and after the classes. The authors considered the homemakers to be more aware of the material in the flyers having read them. The flyers alone were not assessed as an information source. Indeed, the effect of supplementary services is rarely measured although they are considered useful in reaching the target homemakers.

In 1965, Oppenheim (27) undertook a variety of methods to instruct Puerto Rican homemakers in improving homemaking practices including economical and nutritious food purchases. Teaching machines and script-plus-slide techniques both were considered to be somewhat effective. An informal assessment indicated the major success of the study was the realization that when people indigenous to the area gave instruction, greater efforts were achieved. The author concluded that one must not only use approaches suited to backgrounds, desires, and needs, but must also gain the confidence and acceptance of the participants. Use of local personnel initiates programmes more rapidly, lessening delays incurred awaiting highly trained staff.

Such home economist-homemaker aide teams have indications of success as an educational approach (34, 36, 38, 39). The total push, integral to the homemaker-aide service, was important for the adoption of new ideas and techniques.

In Hawaii, Smith et al (36) found over eighty

percent of the participants showed definite improvements in homemaking practices which were assessed by a check list rating scale which the aides completed by observation on visiting the home. No reports were made concerning nutrition or food choice; no direct questions were asked of the homemaker. The homemakers were eager to participate in the service and expressed appreciation for it. In addition, the service utilized many part-time resource personnel.

Spindler (38) stressed the use of indigenous homemaker-aides to bridge the cultural gap between the low-income homemaker and the middle-class professional. Aides kept logs of the conditions and practices they observed during home visits. A pilot study of a homemaker-aide service in Alabama showed forty percent of the participants with better food buying practices, forty-two percent with improved family eating habits, and forty-four percent with improved food preparation skills. Such gratifying assessment supports the usage of homemaker-aide programmes.

Spindler et al (39) reported successes with programme aides in other selected areas of the United States, particularly New York and Connecticut. The aides indicated they themselves had improved self-concepts, improved food management, and increased nutrition knowledge. Twenty-four hour recalls of food eaten by the homemakers six months after the start of the programme showed improvements when compared to recalls taken early in the programme.

A home visitors programme has also been conducted in Canada. Sheehan (34) reported that an Alberta programme was useful in crossing the cultural gap between the middle-class oriented home economists and the low-income homemakers. The study indicated the home visitors communicated both knowledge and application principles to their clients. The objective of this programme was to orient the homemaker to available services prior to her entering in any series of classes. Although no objective assessment of the programme was made, the home visitors were considered to be an important step in organizing the family for integration into the ongoing society.

A NUTRITION EDUCATION PROGRAMME

The City of Winnipeg Department of Welfare conducts a nutrition education action programme in the form of homemaking classes. One of the primary objectives of the course is to help the homemakers on public assistance learn to choose nutritious foods on a limited budget. The course content concentrates on economical purchases within the major food groups to meet the requirements outlined by Canada's Food Guide. A lesson outline is given in Appendix A.

Educationist Walcott H. Beatty (5), discussing the relationship between knowledge and behavior, stated that knowledge, even when remembered, frequently is not used in situations appropriate to it. This programme of homemaking classes was constructed with this principle of adult education theory in mind. It was hoped that through the principles of motivation, participation, and relation, the individual participants would acquire knowledge which would, in turn, become personally experienced perception. Thus the knowledge would not maintain its self-contained status, but would intermingle with experience and behavior resulting in changes in the participants' food choices. Knowledge acquired using these principles, as in homemaking classes, is most likely to affect behavior.

The first criteria, homemaker motivation, was stimulated by the Department of Welfare. Encouragement to

learn was provided by the social workers and teachers. Interest was awakened by stressing the self-satisfaction to be obtained from the course as a result of its stimulating content and beneficial effects for the participant's children. Monetary savings which could be derived via more economical food choice were also emphasized.

Homemakers were requested to sign statements indicating their intention to attend all the classes. Prior to the course, they were paid for their participation. This payment had to be returned if the commitment for attendance was not satisfactorily met. The payment was deducted from the first assistance cheque following the course if the homemaker did not attend any of the classes.

To insure that the desired behavioral patterns were personally perceived, homemaker participation was an integral part of the course. As a part of each class, the homemaker was required to prepare foods related to those in the lesson and was requested to participate in discussion concerning the class topic and food preparation. This focused the learner's attention on the problem at hand and concentrated her interest on the specific aspect discussed. Such active participation is considered conducive to adult learning (21).

Education theorists (20) contend that experience must be related to self to be learned and rejection of the presented idea can occur if there is no relation or relation is inconsistent with self. The more personal the meaning,

the greater the effect the learning situation will have on behavior. Thus, another major consideration in formulating lesson content and structure was relation, that is, making the subject matter meaningful to the learner by relating it to her particular situation. As all participants had a limited food budget, course instructors attempted to indicate, via course content, how the homemaker could follow Canada's Food Guide at a minimum cost by employing the suggested methods of selection and preparation.

If the adult needs of desire to learn, learner effort, and satisfaction of needs can be met by this pattern of motivation, participation, and relation, the programme may be considered useful (33). Participant familiarity with the material presented in the area of general knowledge of nutrition and knowledge of content of Canada's Food Guide is considered a desirable outcome. Food choice, in everyday practice, following Canada's Food Guide is the ultimate goal.

RESEARCH DESIGN

HYPOTHESIS

The purpose of the homemaking classes was to improve nutrition knowledge and food choice. It was hypothesized that, after the course, the participants would have:

(a) increased their general knowledge of nutrition.

(b) increased their knowledge of the content of Canada's Food Guide.

(c) improved their food habits as reflected by food choice which adhered more closely to the recommendations of Canada's Food Guide.

Variations in the extent of improvement might be related to non-class factors such as homemaker age, education, total family size, number of young children, previous exposure to nutrition information, length of time on welfare, reason for being on welfare, and to the number of lessons attended by the participants.

PARTICIPANTS

Homemakers who exhibited a willingness or inclination to take part in such homemaking classes were invited to attend by their social worker, aide, or members concerned with the Education Section of the Welfare Department. Homemakers were assigned to either the foods or clothing section as determined

by the Department personnel. Classes were conducted in the home economics kitchen of a centrally located high school and homemaker attendance ranged from none to all of the ten classes scheduled, with a mean attendance of seven classes.

Of the twenty-nine homemakers enrolled in the series, twenty-seven participated in the course evaluation. Homemaker-family characteristics are given in Table I.

The average family size was approximately six members. A family with under three members was considered to be small. The average size family had three or four members; the large family had five to eight members. A very large family had over eight members. The families averaged about three children under eleven years of age. Fewer than two children under eleven was considered to be a small number. Two or three young children was considered an average number. More than three children under eleven years was considered to be a large number of young children. These categories are those used by Dhalla (11) in his sourcebook of marketing and socio-economic facts for Canadian family size and composition.

Homemaker ages ranged from twenty to fifty-one years. Homemakers over thirty were categorized as older homemakers; those under thirty, as younger homemakers.

Educational level was assessed on the basis of number of grades completed in school. Four homemakers had only primary school (grades 1 to 6) education and were in the first education category. Nineteen homemakers had attended junior

TABLE I

HOMEMAKER-FAMILY CHARACTERISTICS

SUBJECT NUMBER	TOTAL FAMILY SIZE	NUMBER OF CHILDREN UNDER 11	AGE	EDUCATION	PREVIOUS EXPOSURE	LENGTH OF TIME ON WELFARE**	REASON FOR BEING ON WELFARE	NUMBER OF LESSONS ATTENDED
1	7	3	36	jr.high	0	3	unemployed husband	6
2	6	2	35	jr.high	home ec.	1	deserted wife	3
3	6	4	33	sr.high	home ec.	3	deserted wife	7
4	6	4	29	jr.high	some	4	deserted wife	9
5	5	3	28	jr.high	some	1	deserted wife	9
6	5	2	32	jr.high	home ec.	- *	deserted wife	0
7	5	3	32	jr.high	0	- *	deserted wife	0
8	7	5	37	jr.high	home ec.	3	deserted wife	10
9	10	3	25	jr.high	home ec.	2	unemployable	10
10	2	0	28	jr.high	home ec.	2	unemployable	10
11	5	4	25	jr.high	0	2	deserted wife	3
12	6	4	32	sr.high	home ec.	3	unemployed husband	8
13	4	3	27	jr.high	0	2	unwed mother	9
14	5	0	51	primary	0	4	unemployed husband	6
15	4	0	37	jr.high	0	- *	deserted wife	5
16	4	3	24	sr.high	home ec.	2	deserted wife	8
17	7	3	32	primary	0	4	deserted wife	7
18	6	4	26	jr.high	0	2	deserted wife	9
19	3	2	24	sr.high	home ec.	2	deserted wife	8
20	11	6	33	jr.high	home ec.	4	deserted wife	9
21	3	2	27	jr.high	0	2	deserted wife	10
22	6	3	33	primary	0	4	deserted wife	9
23	4	3	20	jr.high	0	1	deserted wife	10
24	7	1	41	jr.high	0	2	deserted wife	6
25	6	4	31	primary	0	3	deserted wife	5
26	5	2	41	jr.high	0	2	deserted wife	7
27	13	7	38	jr.high	0	4	deserted wife	8
Mean	5.89	2.96	30.8					7.2

* provincial case; information unavailable

** 1 = under 2 years; 2 = 2-5 years; 3 = 6-10 years; 4 = over 10 years

high (grades 7 to 9). Only four had completed grades in senior high school (grades 10 to 12).

Previous exposure to nutrition information in a classroom setting was accounted. Ten homemakers had some high school home economics classes; two had taken part in homemaking or cooking classes; fifteen had no previous experience with formal nutrition education.

Length of time on welfare was arbitrarily categorized according to the number of years the homemaker had received public assistance. There were three very short term recipients (under two years), nine who had been on welfare for two to five years, five had been on welfare for six to ten years, and six who had been on welfare for over ten years. Most (twenty-one) of the twenty-seven homemakers were deserted wives; three were single - one with children, two without. These twenty-four were sole decision-makers for their family unit. Three of the women were living with their husbands.

Information on homemaker age, education, exposure to nutrition information, family composition, and number of lessons attended was obtained by questioning the homemaker herself. Information concerning length of time on welfare and reason for being on welfare was obtained directly from the Welfare Department to avoid any possible antagonism between interviewer and interviewee.

Two homemakers considered eligible for the course did not participate in the evaluation. One was interviewed

prior to the course, but could not be located for a post-course interview. Seven attempted visits at various times of the day on various days of the week failed to obtain an interview from the second homemaker prior to the start of the course. The extent of participation in the course of these two homemakers is unknown.

DEFINITIONS

The basic design of the study required that comparisons be made of several criteria on a before and after the course basis. These criteria included level of general knowledge of nutrition, level of knowledge of content of Canada's Food Guide, and food choice. Precise definitions of the criteria were necessary to avoid inappropriate assessment of change.

General Knowledge Of Nutrition

One of the desirable outcomes of the course was an increase in the homemaker's general knowledge of nutrition. The homemaker should have been able to exhibit a familiarity with various topics including identification of members of food groups such as citrus fruits, whole grain cereals, and meat alternates; identification of foods important to eyes, blood, and bones; and a knowledge of food sources of certain nutrients such as protein, calcium, calories, and vitamin A.

Information considered indicative of general knowledge ranged from common knowledge to that requiring a more complete understanding of nutrition. In the context of this study, a high-knowledge homemaker would be familiar with over fifty percent of the presented material as contrasted to a low-knowledge homemaker who would know less than half the presented material related to general knowledge of nutrition.

Knowledge Of Content Of Canada's Food Guide

Canada's Food Guide recommends servings of various food groups considered appropriate for a nutritionally adequate balanced diet. A copy of the Guide appears in Appendix B. Another desirable outcome of the course was that the homemaker become more familiar with the content of Canada's Food Guide. Rather than be acquainted with the existence of such a Guide, it was considered more important that the homemaker know some of the recommendations stipulated therein such as types of food mentioned and number of servings recommended in the major food groups including meat, milk, whole grain cereals, fruits, vegetables, eggs and cheese, liver, and vitamin D. Here again the range of knowledge was from the simple to more difficult requiring knowledge of the detail of Canada's Food Guide. In this study, if the homemaker were acquainted with at least half the material presented on this topic, she was referred to as a high-knowledge homemaker concerning the content of Canada's Food Guide.

Food Choice

As Canada's Food Guide is the pattern of intake recommended for adequate nutrition, food selection following these recommendations was another desirable outcome of the course. Homemaker's food selections for a twenty-four hour period were assessed via a scoring mechanism based on Canada's Food Guide. A daily intake should include three servings of milk or milk products, two servings (four slices) of bread, one serving of whole grain cereal, one serving of yellow, raw, or leafy green vegetables, two servings of other vegetables, one serving of citrus fruit, one serving of meat, fish, poultry, or meat alternates, one serving of liver, and one serving of eggs or cheese if not previously scored as a meat substitute. Intake was considered inadequate for that particular item if the specified recommendation was not met. Intake exceeding the recommendations of Canada's Food Guide was not given extra consideration. In this study, food choice was rated high if the twenty-four hour recall period included more than half the items in at least the quantities specified.

Also included in the criteria measured pre and post course were the homemaker's degree of concern, level of living, and clean - neat score. Although these factors cannot be considered part of nutrition education, they might have had a bearing on achievement and performance within the

programme and, therefore, were assessed.

Degree Of Concern

The degree of homemaker's concern for her family might be a factor in her attitude toward homemaking and toward improvement of her homemaking practices. Indices of concern would include a knowledge of her family's meals, concern regarding the source of food items obtained and meal attendance, and a desire to serve foods good for her family, particularly her children. The very concerned homemaker would be acquainted with her family's food habits and answer positively in this regard. A lack of concern would be reflected by a lack of knowledge of family food habits and lack of interest in them.

Level Of Living

To obtain a brief and objective picture of the socio-economic level at which these families were living, homes were assessed by the presence or absence of certain criteria. A point was given for each telephone or extension, for a dining area other than the kitchen, if the family received a daily newspaper, and another if the family occupied a single family dwelling. A maximum of two points was given for the rooms per person ratio. The rooms per person ratio is determined by dividing the total number of rooms in the home, excluding the bath, pantry, attic and halls, by the number of

persons sharing the facilities. A rooms-per-person ratio of one or more is generally considered adequate housing space (1) and received one point. A rooms-per-person ratio of over 1.5 received two points. The maximum possible level of living score was eight points. A rating of four or under is considered a low level of living.

Clean - Neat Score

To avoid opinionation as to the cleanliness and neatness of the homes, a check list of items was completed for objective assessment. Two points each were given for living room furniture, living room floor, kitchen counter, kitchen floor, and outside appearance of the home. One point was given if the item was clean, the other if it was neat. In addition, a point was given if the home did not have an objectionable odor, another if it was not dusty. The maximum possible clean - neat score was twelve points. The clean - neatness of the home would be considered low if the score were below six points. A very clean - neat home would have a score exceeding nine points.

RESEARCH INSTRUMENT

To make an objective assessment of the outcomes of the course, an interview schedule was devised to measure levels of homemaker knowledge of general nutrition, knowledge

of content of Canada's Food Guide, and food choice. The finalized schedule (Appendix C) was the result of repeated pretesting and improvement using other groups of welfare homemakers who were not involved in the course, but were of similar background as the test group.

Face sheet data determined family composition, homemaker age, education, previous exposure to nutrition information, level of living, and clean - neatness of the home. The face sheet also contained other non-test questions which might serve to put the interviewee at ease at the beginning of the interview.

The body of the schedule was composed of the test questions intermingled in a random order with non-skill opinion questions. The test questions covered the areas considered important for assessment of knowledge of general nutrition and content of Canada's Food Guide, as well as homemaker concern. Questions related to knowledge were multiple choice; concern questions were open-ended.

The final question asked the homemaker to give an account of the foods served to her family in the previous twenty-four hours beginning with the last item served. This twenty-four hour recall served as a representative random day for assessment of appropriateness of food choice. It was considered best for the recall to be the last item on the interview schedule, as by then, the homemaker would no longer be intimidated in her responses and would reveal her

family's actual food pattern for that time period.

When signing to take the course, the homemakers were asked if they would object to participating in a survey and answering questions concerning their food habits. None of the women in the test group had expressed any objection. The interview schedule was administered in the home by the author prior and post course. The author did not make reference to an association with the Welfare Department to avoid possible jeopardy of the validity of the requested information.

In the initial interview, the author explained that the purpose of the study was to help improve the homemaking classes and requested the homemaker's co-operation. Each interviewee was invited to read along from the schedule as it was read aloud to them. Most of them did this in whole or in part, however, no pressure was put on those who did not to avoid embarrassing anyone who might have limited reading ability. The interviewee was not told of the post course interview at this time to avoid the discomforture a skill-test situation might create. No contact was made with the homemakers at or during the classes to avoid interaction which might distort the evaluation. An identical schedule was used for the second interview.

The course began the last week in September of 1968 and extended for a ten-week period. Pre-course interviews were conducted after the school term had begun to avoid

differences between summer-holiday and school-term eating patterns being reflected in the twenty-four hour recalls. Second interviews were conducted immediately after the course.

Schedule data was tabulated and mean scores calculated in the various sections. As these means were for population data, they could be subjected to simple numerical comparisons to indicate improvement post course in general knowledge of nutrition, knowledge of content of Canada's Food Guide, and food choice, as well as level of living, clean - neat score, and degree of concern. A "change" in level scored was indicated by at least a ten percent alteration in the pre-course score. The relationship of the non-class factors of homemaker age, education, previous exposure to nutrition information, length of time on welfare, family composition, and the number of lessons attended to initial achievement and to improvement was assessed. Differences between categories were considered to be of significance if post-course scores varied by at least ten percent from the pre-course level. Trends were indicated by numerical variations of continually increasing magnitude either consistently negative or consistently positive within a category.

RESULTS

GENERAL KNOWLEDGE OF NUTRITION

Prior to the course, a mean score of 5.26 of a possible thirteen points was attained by the homemakers on the general knowledge of nutrition test. A homemaker familiar with over half the questions was considered to be a high knowledge homemaker. As pointed out in Table II, there were six high knowledge homemakers in the group of twenty-seven participants. Post-course results indicated a mean score of 6.48 on the general knowledge quiz with fourteen of the twenty-seven homemakers being rated as high knowledge homemakers.

Table III presents the non-class factors and general knowledge of nutrition. Examination of this table reveals that:

(a) the older homemakers obtained a higher mean score (5.31) on this section of the test as compared to the younger homemakers with a mean score of 5.18. Post-course, the younger homemakers obtained a higher mean score (6.91) as compared to the older homemakers with a mean score of 6.19.

(b) the mean score attained by the homemakers was greater with increasing level of educational attainment. Homemakers who had senior high school education did markedly

TABLE II

SCORES FOR GENERAL KNOWLEDGE OF NUTRITION

SUBJECT	PRE-COURSE		POST-COURSE	
	SCORE	LEVEL	SCORE	LEVEL
1	6	L [a]	7	H
2	7	H [b]	6	L
3	4	L	7	H
4	8	H	7	H
5	6	L	8	H
6	6	L	6	L
7	3	L	1	L
8	5	L	8	H
9	5	L	6	L
10	2	L	6	L
11	4	L	4	L
12	8	H	7	H
13	4	L	8	H
14	5	L	7	H
15	4	L	4	L
16	8	H	7	H
17	5	L	6	L
18	3	L	5	L
19	9	H	10	H
20	5	L	6	L
21	4	L	6	L
22	4	L	7	H
23	4	L	9	H
24	8	H	9	H
25	5	L	5	L
26	4	L	6	L
27	6	L	7	H
MEAN	5.26	21L	6.48	13L
MAXIMUM POSSIBLE	13	6H	13	14H

[a] Low [b] High

TABLE III

NON-CLASS FACTORS AND GENERAL KNOWLEDGE OF NUTRITION

NON-CLASS FACTORS IN CATEGORIES / GENERAL KNOWLEDGE OF NUTRITION		TOTALS IN CATEGORIES	PRE-COURSE MEAN SCORES	POST-COURSE MEAN SCORES	NET CHANGE IN NUMBER OF HIGH LEVEL HOMEMAKERS
HOMEMAKER AGE	Under 30	11	5.18	6.91	+ 3
	Over 30	16	5.31	6.19	+ 5
HOMEMAKER EDUCATION	Grades 1-6	4	4.75	6.25	+ 2
	" 7-9	19	4.95	6.26	+ 5
	" 10-12	4	7.25	7.75	+ 1
PREVIOUS EXPOSURE	None	15	4.60	6.07	+ 6
	Some	2	7.00	7.50	+ 1
	Home Ec.	10	5.90	6.90	+ 1
TOTAL FAMILY SIZE	1-2	1	2.00	6.00	0
	3-4	6	5.50	7.33	+ 2
	5-8	17	5.35	6.24	+ 5
	Over 8	3	5.33	6.33	+ 1
NUMBER OF CHILDREN UNDER 11	Up to 2	4	4.75	6.50	+ 1
	2,3	14	5.36	6.64	+ 4
	Over 3	9	5.33	6.22	+ 3
REASON FOR BEING ON WELFARE	Deserted Wife	21	5.33	6.38	+ 5
	Unmarried Mother	1	4.00	8.00	+ 1
	Unemployed Single	2	3.50	6.00	0
	Unemployed Husband	3	6.33	7.00	+ 2
LENGTH OF TIME ON WELFARE*	Under 2 yrs.	3	5.70	7.70	+ 1
	2-5 years	10	5.10	6.70	+ 1
	6-10 years	5	5.60	6.80	+ 3
	Over 10 yrs.	6	5.50	7.70	+ 3
OVERVIEW		27	5.26	6.48	+ 8

* information unavailable for the three provincial cases

better than their junior high and primary school counterparts. Homemakers at all education levels increased their nutrition knowledge post course. However, the lower the educational level, the greater was the increase.

(c) homemakers with no previous exposure to nutrition education information scored lower than those who had some exposure in the form of health, cooking, or homemaking classes or high school home economics. There were increases in general knowledge for homemakers in all exposure categories. Homemakers with no previous exposure exhibited the greatest increases in mean score.

(d) with the exception of the one single woman who scored very poorly, knowledge scores were slightly lower with increasing family size. Mean scores of homemakers with smaller families increased more than those with larger families post course. The single homemaker who had scored so poorly in the pre-course test tripled her score.

(e) there was no dominant trend relating the number of children under eleven years which the homemaker had to her general knowledge score. Post-course, homemakers with the least number of children had the greatest gains in general knowledge of nutrition.

(f) single homemakers scored lowest on the general knowledge of nutrition section. Married homemakers with husbands scored the highest. Single homemakers experienced the

greatest gains in knowledge following course participation.

(g) the length of time the homemaker had been on welfare appeared to have no bearing on her level of attainment in the general knowledge section. Post-course, the gains in knowledge were slightly greater for homemakers who had been on welfare for a longer period of time.

KNOWLEDGE OF CONTENT OF CANADA'S FOOD GUIDE

Pre-course interviews indicated that only one of the homemakers was familiar with over fifty percent of the requested information. The remaining twenty-six ranked as low knowledge homemakers as illustrated in Table IV. Mean scores on this section of questions was 3.11 of a possible ten points. Post-course, the mean score attained was 5.07 of a possible ten points. A high knowledge rating was obtained by twelve of the twenty-seven homemakers (Table IV).

The knowledge of the content of Canada's Food Guide and non-class factors are presented in Table V. The data shows:

(a) knowledge of content was lower with the under thirty age group who attained a mean score of 2.91 as compared to the over-thirty age group who attained a mean score of 3.25. Post-course, the younger homemakers' mean score exceeded the mean score of the over-thirty age group.

TABLE IV

SCORES FOR KNOWLEDGE OF CONTENT
OF CANADA'S FOOD GUIDE

SUBJECT	PRE-COURSE		POST-COURSE	
	SCORE	LEVEL	SCORE	LEVEL
1	5	L [a]	5	L
2	3	L	5	L
3	3	L	8	H
4	1	L	4	L
5	2	L	6	H
6	4	L	4	L
7	4	L	5	L
8	3	L	3	L
9	2	L	6	H
10	5	L	8	H
11	2	L	1	L
12	3	L	5	L
13	3	L	7	H
14	4	L	6	H
15	3	L	4	L
16	6	H [b]	5	L
17	3	L	4	L
18	2	L	3	L
19	3	L	6	H
20	2	L	6	H
21	5	L	8	H
22	3	L	6	H
23	1	L	4	L
24	3	L	3	L
25	2	L	3	L
26	3	L	6	H
27	4	L	6	H
MEAN	3.11	26L	5.07	15L
MAXIMUM POSSIBLE	10	1H	10	12H

[a] Low [b] High

TABLE V

NON-CLASS FACTORS AND KNOWLEDGE OF CONTENT OF CANADA'S FOOD GUIDE

NON-CLASS FACTORS IN CATEGORIES / KNOWLEDGE OF CONTENT OF CANADA'S FOOD GUIDE		TOTALS IN CATEGORIES	PRE-COURSE MEAN SCORES	POST-COURSE MEAN SCORES	NET CHANGE IN NUMBER OF HIGH LEVEL HOMEMAKERS
HOMEMAKER AGE	Under 30	11	2.91	5.27	+ 5
	Over 30	16	3.25	4.94	+ 6
HOMEMAKER EDUCATION	Grades 1-6	4	3.00	4.75	+ 2
	" 7-9	19	3.00	4.95	+ 8
	" 10-12	4	3.75	6.00	+ 1
PREVIOUS EXPOSURE	None	15	3.13	4.73	+ 6
	Some	2	1.50	5.00	+ 1
	Home Ec.	10	3.40	5.60	+ 4
TOTAL FAMILY SIZE	1-2	1	5.00	8.00	+ 1
	3-4	6	3.50	5.67	+ 2
	5-8	17	2.94	4.53	+ 5
	Over 8	3	2.67	6.00	+ 3
NUMBER OF CHILDREN UNDER 11	Up to 2	4	3.75	5.25	+ 2
	2,3	14	3.36	5.50	+ 6
	Over 3	9	2.44	4.33	+ 3
REASON FOR BEING ON WELFARE	Deserted Wife	21	2.95	4.76	+ 8
	Unmarried Mother	1	3.00	7.00	0
	Unemployed Single	2	3.50	7.00	+ 2
	Unemployed Husband	3	4.00	5.33	+ 1
LENGTH OF TIME ON WELFARE*	Under 2 yrs.	3	2.00	5.00	+ 1
	2-5 years	10	3.40	5.30	+ 5
	6-10 years	5	3.20	4.80	+ 1
	Over 10 yrs.	6	2.80	5.30	+ 4
OVERVIEW		27	3.11	5.07	+11

* information unavailable for the three provincial cases

(b) homemakers with senior high school had only a slightly better acquaintance with Canada's Food Guide than both less educated groups. These senior high school educated homemakers also experienced the greatest gains in knowledge post course.

(c) the extent of previous exposure to nutrition information was not found to be related to knowledge of Canada's Food Guide. Gains were less for the homemakers with less previous exposure to nutrition information.

(d) as total family size increased, the level of knowledge of the content of Canada's Food Guide was found to decrease. Post-course, no trends were indicated relating total family size and level of knowledge or gain in knowledge of Canada's Food Guide.

(e) the homemakers with the least number of young children obtained the highest mean score. Gains were greatest for the homemakers with the largest number of young children.

(f) homemakers with husbands exhibited a slightly higher level of knowledge than did other groups. Post-course, these homemakers showed less gain than did single homemakers. Unmarried homemakers had the greatest gains.

(g) there was no relationship reflected between the length of time on welfare and the level of knowledge or gain in knowledge of the content of Canada's Food Guide pre and post-course.

FOOD CHOICE

A mean of 4.56 of a possible ten points was indicated for the food choice scores of the homemakers before participating in the course. The appearance of over fifty percent of the recommended dietary items in the twenty-four hour period previous to the interview was considered to merit a high food choice score. Only one-third of the homemakers had high food choice scores as illustrated in Table VI. Scores attained after the course showed little change in level of food choice. Again two-thirds of the homemakers were rated as having low food choice scores as illustrated in Table VI. Mean score changed to 4.78 of a possible ten points.

Although overall alteration was slight, there was some re-organization of the pattern of factors associated with level of food choice score as shown in Table VII:

(a) differences in mean scores of older homemakers as compared to younger homemakers were slight. There was no net change in the number of high knowledge homemakers, although the mean score of the younger homemakers increased.

(b) the more highly educated the homemaker, the higher the pre-course food choice score. Post-course, no pattern of differences relating educational level and food choice scores was found.

TABLE VI

SCORES FOR FOOD CHOICE

SUBJECT	PRE-COURSE		POST-COURSE	
	SCORE	LEVEL	SCORE	LEVEL
1	5	L [a]	5	L
2	5	L	5	L
3	5	L	6	H
4	6	H [b]	4	L
5	3	L	5	L
6	3	L	2	L
7	6	H	4	L
8	3	L	3	L
9	6	H	8	H
10	3	L	3	L
11	2	L	2	L
12	5	L	5	L
13	2	L	3	L
14	4	L	5	L
15	7	H	6	H
16	5	L	7	H
17	6	H	6	H
18	6	H	6	H
19	6	H	6	H
20	4	L	6	H
21	6	H	5	L
22	4	L	4	L
23	4	L	7	H
24	6	H	5	L
25	2	L	3	L
26	5	L	4	L
27	4	L	4	L
MEAN	4.56	18L	4.78	18L
MAXIMUM POSSIBLE	10	9H	10	9H

[a] Low [b] High

TABLE VII

NON-CLASS FACTORS AND FOOD CHOICE

NON-CLASS FACTORS IN CATEGORIES / FOOD CHOICE		TOTALS IN CATEGORIES	PRE-COURSE MEAN SCORES	POST-COURSE MEAN SCORES	NET CHANGE IN NUMBER OF HIGH LEVEL HOMEMAKERS
HOMEMAKER AGE	Under 30	11	4.45	5.09	0
	Over 30	16	4.63	4.56	0
HOMEMAKER EDUCATION	Grades 1-6	4	4.00	4.50	0
	" 7-9	19	4.53	4.58	- 2
	" 10-12	4	5.25	6.00	+ 2
PREVIOUS EXPOSURE	None	15	4.60	4.60	- 2
	Some	2	4.50	4.50	- 1
	Home Ec.	10	4.50	5.10	+ 3
TOTAL FAMILY SIZE	1-2	1	3.00	3.00	0
	3-4	6	5.00	5.33	+ 1
	5-8	17	4.47	4.35	- 2
	Over 8	3	4.67	6.00	+ 1
NUMBER OF CHILDREN UNDER 11	Up to 2	4	5.00	4.75	- 1
	2,3	14	4.71	5.07	0
	Over 3	9	4.11	4.33	+ 1
REASON FOR BEING ON WELFARE	Deserted Wife	21	4.67	4.76	0
	Unmarried Mother	1	2.00	3.00	0
	Unemployed Single	2	4.50	5.50	0
	Unemployed Husband	3	4.67	5.00	0
LENGTH OF TIME ON WELFARE*	Under 2 yrs.	3	4.00	5.70	+ 1 **
	2-5 years	10	4.70	4.90	- 1
	6-10 years	5	4.00	4.40	+ 1
	Over 10 yrs.	6	4.70	4.80	0
OVERVIEW		27	4.56	4.78	0

* information unavailable for the three provincial cases

**one of the provincial-case homemakers shifted from high to low to counterbalance this apparent gain

(c) only slight variations in the mean scores were observed at the various levels of previous exposure to nutrition information. After the course, only the group previously exposed to high school home economics experienced any increase in food choice rating.

(d) total family size did not appear to be related to food choice scores or to change in food choice scores. Homemakers with very large families had a mean score of 6.0 as compared to a mean previous score of 4.67.

(e) the homemakers with a smaller number of young children had higher food choice scores. However, increases in food choice rating were not found to be related to the number of children under eleven.

(f) reason for being on welfare did not appear to have a bearing on food choice scores, however, the unmarried mother scored very low (2.0) in food choice. Post-course, unmarried homemakers showed the most appreciable change in food choice scores.

(g) length of time on welfare was not found to be related to food choice scores. However, homemakers who had been on welfare for under two years showed the greatest increase in food choice score.

DEGREE OF CONCERN

Twelve of the twenty-seven homemakers expressed an

average degree of concern in the pre-course interview (Table VIII). The mean score for concern of 7.26 fell in the average concern category of six to eight of a possible ten points. Three homemakers had a low degree of concern scoring under six. The remaining twelve had a high degree of concern scoring over eight. Post-course, the mean score was 7.22. Minor fluctuations in scores counterbalanced each other except for a slight decrease in the concern score of one homemaker. As this was the only homemaker to change categories in degree of concern, for purposes of discussion, the pre-course scores will be used.

In Table IX, the relevance of the following non-class factors to degree of concern is shown:

(a) younger homemakers expressed a higher mean score in degree of concern than did the over-thirty age group.

(b) no trends were found relating level of educational attainment and degree of concern.

(c) those with no previous exposure to nutrition information scored slightly higher in degree of concern.

(d) total family size and degree of concern were not found to be related.

(e) homemakers with a large number of young children showed a higher degree of concern than did those with few young children.

(f) the unmarried mother showed the lowest degree of concern; the deserted wives had the highest concern levels.

TABLE VIII

SCORES FOR DEGREE OF CONCERN

SUBJECT	PRE-COURSE		POST-COURSE	
	SCORE	LEVEL	SCORE	LEVEL
1	6	A [c]	6	A
2	9	H [b]	10	H
3	6	A	7	A
4	6	A	7	A
5	6	A	7	A
6	8	H	8	H
7	8	H	9	H
8	6	A	6	A
9	7	A	6	A
10	6	A	6	A
11	9	H	9	H
12	9	H	7	A
13	4	L [a]	4	L
14	5	L	5	L
15	9	H	8	H
16	9	H	9	H
17	9	H	9	H
18	9	H	8	H
19	9	H	8	H
20	7	A	7	A
21	7	A	7	A
22	6	A	6	A
23	9	H	9	H
24	7	A	7	A
25	9	H	9	H
26	6	A	6	A
27	5	L	5	L
MEAN	7.26	12H	7.22	11H
		12A		13A
MAXIMUM POSSIBLE	10	3L	10	3L

[a] Low [b] High [c] Average

TABLE IX

NON-CLASS FACTORS AND DEGREE OF CONCERN

NON-CLASS FACTORS IN CATEGORIES / DEGREE OF CONCERN		PRE-COURSE MEAN SCORES	NUMBER LOW	NUMBER AVERAGE	NUMBER HIGH	TOTALS
HOMEMAKER AGE	Under 30	7.4	1	5	5	11
	Over 30	6.6	2	7	7	16
HOMEMAKER EDUCATION	Grades 1-6	7.3	1	1	2	4
	" 7-9	6.4	2	10	7	19
	" 10-12	8.3	0	1	3	4
PREVIOUS EXPOSURE	None	7.2	3	5	7	15
	Some	6.0	0	2	0	2
	Home Ec.	6.6	0	5	5	10
TOTAL FAMILY SIZE	1-2	6.0	0	1	0	1
	3-4	7.8	1	1	4	6
	5-8	7.3	1	8	8	17
	Over 8	6.3	1	2	0	3
NUMBER OF CHILDREN UNDER 11	Up to 2	6.8	1	2	1	4
	2,3	7.4	1	7	7	14
	Over 3	7.3	1	4	4	9
REASON FOR BEING ON WELFARE	Deserted Wife	7.8	2	9	10	21
	Unmarried Mother	4.0	0	0	1	1
	Unemployed Single	6.5	0	2	0	2
	Unemployed Husband	6.7	1	1	1	3
LENGTH OF TIME ON WELFARE*	Under 2 yrs.	8.0	0	1	2	3
	2-5 years	7.3	1	5	4	10
	6-10 years	7.2	0	3	2	5
	Over 10 yrs.	6.3	2	3	1	6
LEVEL OF LIVING	Low	7.4	2	11	12	25
	High	6.0	1	1	0	2
OVERVIEW		7.26	3	12	12	27

* information unavailable for the three provincial cases

(g) the longer the homemakers had been on welfare, the lower were the mean scores for degree of concern.
(h) homemakers at a lower level of living had higher mean scores for degree of concern.

Degree of concern and pre-course levels of knowledge of nutrition, knowledge of the content of Canada's Food Guide, and food choice are illustrated in Table X. Pre-course scores were selected for these comparisons to avoid distortions which might result from class participation. The data show:

(a) as concern increases there is a slight increase in mean scores obtained in the general knowledge of nutrition portion of the schedule. Differences are minor.
(b) a slight decrease in knowledge of the content of Canada's Food Guide is apparent as degree of concern increases, however, again differences are minor.
(c) as the homemaker degree of concern increases, the mean score in level of food choice also increases.

LEVEL OF LIVING

Level of living scores exceeding four were considered to be high; those four and under were considered to be low. The mean level of living score was 2.56 of a possible eight points reflecting that twenty-five of the twenty-seven participants had a low level of living, as shown in Table XI. These level of living scores were identical pre and post-course.

TABLE X

DEGREE OF CONCERN AND MEAN SCORES FOR KNOWLEDGE AND FOOD CHOICE

DEGREE OF CONCERN	PRE-COURSE MEAN SCORE	NUMBER LOW	NUMBER HIGH	TOTALS
I. GENERAL KNOWLEDGE				
LOW	5.00	3	0	3
AVERAGE	5.10	10	2	12
HIGH	5.50	8	4	12
II. KNOWLEDGE OF CONTENT				
LOW	3.70	3	0	3
AVERAGE	3.10	12	0	12
HIGH	3.00	11	1	12
III. FOOD CHOICE				
LOW	3.30	3	0	3
AVERAGE	4.70	8	4	12
HIGH	4.80	7	5	12

TABLE XI

SCORES FOR LEVEL OF LIVING

SUBJECT	PRE-COURSE		POST-COURSE	
	SCORE	LEVEL	SCORE	LEVEL
1	3	L [a]	3	L
2	3	L	3	L
3	4	L	4	L
4	2	L	2	L
5	1	L	1	L
6	4	L	4	L
7	2	L	2	L
8	1	L	1	L
9	5	H [b]	5	H
10	4	L	4	L
11	2	L	2	L
12	3	L	3	L
13	4	L	4	L
14	5	H	5	H
15	3	L	3	L
16	4	L	4	L
17	2	L	2	L
18	1	L	1	L
19	3	L	3	L
20	1	L	1	L
21	2	L	2	L
22	2	L	2	L
23	2	L	2	L
24	1	L	1	L
25	1	L	1	L
26	1	L	1	L
27	3	L	3	L
MEAN	2.56	25L	2.56	25L
MAXIMUM POSSIBLE	8	2H	8	2H

[a] Low [b] High

The non-class factors in relation to level of living are presented in Table XII which indicates:

(a) homemaker age differences did not reflect great variations in level of living.

(b) no pattern of relation could be found for homemaker education and level of living.

(c) total family size and level of living were not found to be related.

(d) the homemaker with fewer young children had a higher mean score in level of living ratings.

(e) married homemakers had a lower level of living.

(f) the length of time on welfare was not found to be related to level of living.

Data in Table XIII indicate the association of level of living to pre-course scores in the three major test areas:

(a) no relationship could be determined between the level of living and the score in the general knowledge of nutrition.

(b) knowledge of content of Canada's Food Guide was not found to be related to level of living.

(c) food choice scores and level of living scores were found to be unrelated.

CLEAN - NEAT SCORE

The three categories of clean - neat scores were:

TABLE XII

NON-CLASS FACTORS AND LEVEL OF LIVING

NON-CLASS FACTORS IN CATEGORIES / LEVEL OF LIVING		MEAN SCORE	NUMBER LOW	NUMBER HIGH	TOTALS
HOMEMAKER AGE	Under 30	2.64	10	1	11
	Over 30	2.50	15	1	16
HOMEMAKER EDUCATION	Grades 1-6	3.33	3	1	4
	" 7-9	2.36	18	1	19
	" 10-12	3.50	4	0	4
TOTAL FAMILY SIZE	1-2	4.00	1	0	1
	3-4	3.00	6	0	6
	5-8	2.24	16	1	17
	Over 8	3.00	2	1	3
NUMBER OF CHILDREN UNDER 11	Up to 2	3.25	3	1	4
	2,3	2.71	13	1	14
	Over 3	2.00	9	0	9
REASON FOR BEING ON WELFARE	Deserted Wife	2.14	21	0	21
	Unmarried Mother	4.00	1	0	1
	Unemployed Single	4.50	1	1	2
	Unemployed Husband	3.67	2	1	3
LENGTH OF TIME ON WELFARE*	Under 2 years	2.00	3	0	3
	2-5 years	2.70	9	1	10
	6-10 years	2.40	5	0	5
	Over 10 years	2.50	5	1	6
OVERVIEW		2.56	25	2	27

* information unavailable for the three provincial cases

TABLE XIII

LEVEL OF LIVING AND MEAN SCORES FOR KNOWLEDGE AND FOOD CHOICE

LEVEL OF LIVING	PRE-COURSE MEAN SCORE	NUMBER LOW	NUMBER HIGH	TOTALS
	I. GENERAL KNOWLEDGE			
1	5.1	6	1	7
2	4.6	6	1	7
3	6.7	3	3	6
4	4.8	4	1	5
5	5.0	2	0	2
	II. KNOWLEDGE OF CONTENT			
1	2.4	7	0	7
2	2.7	7	0	7
3	3.5	6	0	6
4	3.8	4	1	5
5	3.0	2	0	2
	III. FOOD CHOICE			
1	4.1	5	2	7
2	4.9	3	4	7
3	5.3	4	2	6
4	3.6	5	0	5
5	5.0	1	1	2

low - six and under, average - seven to nine, and high - over nine of a possible twelve points. Prior to the course, the mean clean - neat score was 7.33. Distribution of homemakers was fairly even in all categories of clean - neatness as shown in Table XIV. Post-course scores showed seventeen of the twenty-seven homemakers with high clean - neat scores. Mean score was 8.74 after the course (Table XIV).

Table XV presents the clean - neat scores and non-class factors. Examination of the data reveals:

(a) younger homemakers had higher clean - neat scores. Older homemakers had greater gains in clean - neat scores, however, the younger homemakers still scored higher post course.

(b) homemaker educational level was not found to be related to clean - neat score. However, homemakers with low educational levels experienced greater gains post course, raising their mean clean - neat score above both high school educated groups.

(c) previous exposure to nutrition information and clean - neat score did not appear to be associated.

(d) very large families had the lowest mean clean - neat scores (4.67). Total family size was not found to be related to increases in clean - neat score.

(e) the greater the number of young children, the lower was the clean - neat score. Increases in clean - neat scores were fairly equal for all categories.

TABLE XIV

CLEAN - NEAT SCORES

SUBJECT	PRE-COURSE		POST-COURSE	
	SCORE	LEVEL	SCORE	LEVEL
1	9	A [c]	10	H
2	12	H [b]	12	H
3	3	L [a]	0	L
4	9	A	10	H
5	11	H	12	H
6	9	A	8	A
7	5	L	3	L
8	10	H	10	H
9	12	H	9	A
10	10	H	12	H
11	12	H	12	H
12	8	A	11	H
13	4	L	2	L
14	10	H	12	H
15	8	A	5	L
16	10	H	11	H
17	10	H	10	H
18	11	H	10	H
19	7	A	10	H
20	1	L	11	H
21	9	A	10	H
22	0	L	10	H
23	2	L	5	L
24	4	L	8	A
25	7	A	8	A
26	4	L	12	H
27	1	L	3	L
MEAN	7.33	9L	8.74	6L
MAXIMUM POSSIBLE	12	8A 10H	12	4A 17H

[a] Low [b] High [c] Average

TABLE XV

NON-CLASS FACTORS AND CLEAN - NEAT SCORES

NON-CLASS FACTORS IN CATEGORIES / CLEAN - NEAT SCORE		TOTALS IN CATEGORIES	PRE-COURSE MEAN SCORES	POST-COURSE MEAN SCORES	NET CHANGE IN NUMBER OF HIGH LEVEL HOMEMAKERS
HOMEMAKER AGE	Under 30	11	8.82	9.36	+ 2
	Over 30	16	6.31	8.31	+ 5
HOMEMAKER EDUCATION	Grades 1-6	4	6.75	10.00	+ 1
	" 7-9	19	7.53	8.63	+ 4
	" 10-12	4	7.00	8.00	+ 2
PREVIOUS EXPOSURE	None	15	6.40	8.33	+ 4
	Some	2	10.00	11.00	+ 1
	Home Ec.	10	7.80	9.40	+ 2
TOTAL FAMILY SIZE	1-2	1	10.00	12.00	0
	3-4	6	6.67	7.17	+ 2
	5-8	17	7.88	9.29	+ 5
	Over 8	3	4.67	7.69	0
NUMBER OF CHILDREN UNDER 11	Up to 2	4	8.00	9.25	0
	2,3	14	7.43	8.86	+ 4
	Over 3	9	6.89	8.33	+ 3
REASON FOR BEING ON WELFARE	Deserted Wife	21	7.53	9.48	+ 6
	Unmarried Mother	1	4.00	2.00	0
	Unemployed Single	2	11.00	10.50	- 1
	Unemployed Husband	3	4.67	4.67	+ 2
LENGTH OF TIME ON WELFARE*	Under 2 yrs.	3	8.30	9.70	0
	2-5 years	10	7.30	9.60	+ 2
	6-10 years	5	7.40	7.80	+ 2
	Over 10 yrs.	6	5.20	9.30	+ 3
DEGREE OF CONCERN (PRE-COURSE)	Low	3	5.00	5.70	0
	Average	12	6.80	9.50	+ 5
	High	12	8.40	8.80	+ 2
LEVEL OF LIVING	Low	25	7.00	8.60	+ 8
	High	2	11.00	10.50	- 1
OVERVIEW		27	7.33	8.74	+ 7

* information unavailable for the three provincial cases

(f) reason for being on welfare was not found to be related to original score or increases in score concerning clean - neatness.

(g) the longer the homemaker had been on welfare, the lower was the clean - neat score obtained. Homemakers who had been on welfare for over ten years had great increases in clean - neat scores.

(h) the higher the degree of concern score, the higher the homemaker scored in clean - neatness. Large gains in clean - neat scores were found for homemakers with an average degree of concern.

(i) homemakers at the high level of living had higher clean - neat scores than those at a low level of living. Post-course, these scores diminished slightly as compared to the low level of living group whose mean scores increased.

As illustrated in Table XVI, there are no trends relating clean - neat scores and levels obtained in general knowledge of nutrition, knowledge of content of Canada's Food Guide, or food choice.

NUMBER OF LESSONS ATTENDED

Mean attendance was approximately seven lessons of a possible ten as illustrated in Table XVII. Six homemakers had a low attendance, that is, fewer than six of the lessons. Nine homemakers attended an average number of lessons (six to

TABLE XVI

CLEAN - NEAT SCORES AND MEAN SCORES FOR KNOWLEDGE AND FOOD CHOICE

CLEAN - NEAT SCORE	MEAN SCORE	NUMBER LOW	NUMBER HIGH	TOTALS
	I. GENERAL KNOWLEDGE			
LOW	5.1	8	1	9
AVERAGE	6.5	5	3	8
HIGH	5.0	8	2	10
	II. KNOWLEDGE OF CONTENT			
LOW	2.9	9	0	9
AVERAGE	3.3	8	0	8
HIGH	3.2	9	1	10
	III. FOOD CHOICE			
LOW	4.4	7	2	9
AVERAGE	5.0	4	4	8
HIGH	4.3	7	3	10

TABLE XVII

NUMBER OF LESSONS ATTENDED

SUBJECT	NUMBER OF LESSONS ATTENDED	LEVEL OF ATTENDANCE
1	7	A [c]
2	3	L [a]
3	7	A
4	9	H [b]
5	9	H
6	0	L
7	0	L
8	10	H
9	10	H
10	10	H
11	3	L
12	8	A
13	9	H
14	6	A
15	5	L
16	8	A
17	9	H
18	9	H
19	8	A
20	9	H
21	10	H
22	9	H
23	10	H
24	6	A
25	5	L
26	7	A
27	8	A
MEAN	7.2	6L
MAXIMUM POSSIBLE	10	9A 12H

[a] Low [b] High [c] Average

eight). Twelve of the twenty-seven attended nine or ten lessons.

As shown in Table XVIII, there was no pattern of relationship indicated between the number of lessons attended and the non-class factors investigated, with the exception of age. Younger homemakers attended a greater number of lessons.

Attendance was associated with achievement in the three major test areas in the following manner (Table XIX):

(a) the greater the number of lessons attended, the greater the increase in mean score attained in the general knowledge of nutrition.

(b) gains in knowledge of content of Canada's Food Guide increased with increasing attendance.

(c) food choice ratings diminished for the low attendance group post course, but the greater the attendance, the greater were the gains in food choice rating.

TABLE XVIII

NON-CLASS FACTORS AND NUMBER OF LESSONS ATTENDED

NON-CLASS FACTORS IN CATEGORIES / NUMBER OF LESSONS ATTENDED		MEAN NUMBER	NUMBER LOW	NUMBER AVERAGE	NUMBER HIGH	TOTALS
HOMEMAKER AGE	Under 30	8.6	1	2	8	11
	Over 30	6.2	5	7	3	16
HOMEMAKER EDUCATION	Grades 1-6	7.3	1	1	2	4
	" 7-9	7.1	5	4	10	19
	" 10-12	7.8	0	4	0	4
PREVIOUS EXPOSURE	None	6.9	4	5	6	15
	Some	9.0	0	0	2	2
	Home Ec.	7.3	2	4	4	10
TOTAL FAMILY SIZE	1-2	10.0	0	0	1	1
	3-4	8.3	1	2	3	6
	5-8	8.3	5	6	6	17
	Over 8	9.0	0	1	2	3
NUMBER OF CHILDREN UNDER 11	Up to 2	6.8	1	2	1	4
	2,3	6.4	3	4	7	14
	Over 3	7.6	2	3	4	9
REASON FOR BEING ON WELFARE	Deserted Wife	6.9	6	6	9	21
	Unmarried Mother	9.0	0	0	1	1
	Unemployed Single	10.0	0	0	2	2
	Unemployed Husband	7.0	0	3	0	3
LENGTH OF TIME ON WELFARE*	Under 2 yrs.	7.3	1	0	2	3
	2-5 years	8.0	1	4	5	10
	6-10 years	7.4	1	3	1	5
	Over 10 yrs.	8.3	0	2	4	6
DEGREE OF CONCERN	Low	7.7	0	2	1	3
	Average	8.6	0	4	8	12
	High	5.7	6	3	3	12
OVERVIEW		7.2	6	9	12	27

* information unavailable for the three provincial cases

TABLE XIX

NUMBER OF LESSONS ATTENDED AND MEAN SCORES FOR KNOWLEDGE AND FOOD CHOICE

LEVEL OF LESSON ATTENDANCE	PRE-COURSE			POST-COURSE			TOTALS
	MEAN SCORE	NUMBER LOW	NUMBER HIGH	MEAN SCORE	NUMBER LOW	NUMBER HIGH	
I. GENERAL KNOWLEDGE							
LOW	4.8	5	1	4.3	6	0	6
AVERAGE	6.4	5	4	7.3	4	5	9
HIGH	4.6	11	1	6.8	6	6	12
II. KNOWLEDGE OF CONTENT							
LOW	3.0	6	0	3.7	6	0	6
AVERAGE	3.8	8	1	5.6	4	5	9
HIGH	2.7	12	0	5.4	6	7	12
III. FOOD CHOICE							
LOW	4.2	4	2	3.7	5	1	6
AVERAGE	5.0	7	2	5.2	6	3	9
HIGH	4.4	7	5	5.0	7	5	12

SUMMARY AND IMPLICATIONS OF RESULTS

In summarizing the results of this study, the previously stated hypotheses (p.22) will be used as a guide. First hypothesis: That participation in the course would result in increased general knowledge of nutrition.

This study confirmed the findings of others (8, 16, 50) that homemakers have a low general knowledge of nutrition. Pre-course interviews indicated a mean score of 5.26 or 40.5 percent on the general knowledge portion of the schedule. Only six of the twenty-seven interviewees (22.2 percent) were considered to have adequate knowledge in this area.

A summary of the non-class factors and the scores for knowledge and food choice is presented in Table XX. The data indicate that the level of general knowledge of nutrition was greater with increasing age, education, previous exposure to nutrition information, and degree of concern of the homemaker. General knowledge of nutrition was lower with increasing family size. The number of young children, reason for being on welfare, length of time on welfare, level of living, and clean - neat score do not appear to be related to general knowledge scores.

Young (50), studying New York homemakers, also found that younger, more highly educated homemakers with greater exposure to nutrition information had higher levels of knowledge. These researchers concluded that only twenty to

TABLE XX

SUMMARY OF NON-CLASS FACTORS AND THEIR RELATIONSHIP TO PRE-COURSE SCORES

AS THIS FACTOR INCREASED / THIS FACTOR...	GENERAL KNOWLEDGE	KNOWLEDGE OF CONTENT	FOOD CHOICE
AGE	↑	↑	↑
EDUCATION	↑	↑	↑
PREVIOUS EXPOSURE	↑	- - -	- - -
TOTAL FAMILY SIZE	↓	↓	- - -
NUMBER OF CHILDREN UNDER 11	- - -	↓	↓
REASON FOR BEING ON WELFARE	- - -	- - -	- - -
LENGTH OF TIME ON WELFARE	- - -	- - -	- - -
DEGREE OF CONCERN	↑	↓	↑
LEVEL OF LIVING	- - -	- - -	- - -
CLEAN - NEAT SCORE	- - -	- - -	- - -
PERCENT SCORE	40.5	31.1	45.6

Key: ↑ increased

↓ decreased

- - - no observable trend

thirty percent of the homemakers gave evidence of planning their meals on the basis of some real knowledge of nutrition. A more recent study (46) of low income homemakers indicated that less than half those interviewed had a minimal knowledge of nutrition information.

Post-course, the mean score was raised to 6.48 indicating acquaintance with 49.8 percent of the material. Over half the participants were considered to be higher knowledge homemakers in the area of general nutrition information. The greatest gains (Table XXI) were experienced by the younger homemakers, the less highly educated homemakers, the homemakers who had no previous exposure to nutrition information, those with smaller families, and the homemakers who had been on welfare for the longest time. As the number of lessons attended increased, the amount of gain in general knowledge of nutrition also increased.

The first conclusion of the study is that participation in the course resulted in increased levels of general knowledge of nutrition.

Second hypothesis: That participation in the course would lead to increased knowledge of the content of Canada's Food Guide.

Before the course, homemakers were, on the average, acquainted with only 31.1 percent of the content of Canada's Food Guide. Only one of the twenty-seven was considered to be well-acquainted with Canada's Food Guide. As summarized

TABLE XXI

SUMMARY OF FACTORS AND THEIR RELATIONSHIP TO IMPROVEMENTS IN MEAN SCORES

AS THIS FACTOR INCREASED GAINS IN THE MEAN SCORE OF THIS FACTOR...	GENERAL KNOWLEDGE	KNOWLEDGE OF CONTENT	FOOD CHOICE
AGE	↓	↓	↓
EDUCATION	↓	↑	- - -
PREVIOUS EXPOSURE	↓	↑	↑
TOTAL FAMILY SIZE	↓	- - -	- - -
NUMBER OF CHILDREN UNDER 11	- - -	↑	- - -
REASON FOR BEING ON WELFARE	- - -	- - -	- - -
LENGTH OF TIME ON WELFARE	↑	- - -	↓
NUMBER OF LESSONS ATTENDED	↑	↑	↑
POST-COURSE PERCENT SCORE	49.8	50.7	47.8

Key: ↑ increased

↓ decreased

- - - no observable trend

in Table XX, knowledge of Canada's Food Guide decreased with increasing family size, number of young children, and degree of concern. No trends were apparent linking previous exposure, reason for being on welfare, length of time on welfare, level of living, or clean - neat score.

Post-course, level of knowledge of Canada's Food Guide increased to 50.7 percent. Twelve of the twenty-seven homemakers were considered to be well acquainted with the content of Canada's Food Guide. As shown in Table XXI, the largest increases occurred with younger homemakers, more highly educated homemakers, those having had previous exposure to nutrition information, and homemakers with the largest number of young children. Amount of gain in knowledge of Canada's Food Guide increased with increasing attendance. The second conclusion of the study is that course participants increased their knowledge of the content of Canada's Food Guide.

Third hypothesis: That participation in the course would result in food choices made by the homemakers that would more closely adhere to the recommendations of Canada's Food Guide.

The mean score obtained for food choice prior to the course was 4.56 of a possible ten points. Only one-third of the homemakers had scores indicating the presence of over fifty percent of the desired items. As age, education, and degree of concern increased, food choice scores also increased.

As the number of young children increased, food choice scores decreased. As shown in Table XX, there were no trends relating food choice and previous exposure to nutrition information, total family size, reason for being on welfare, length of time on welfare, level of living, or clean - neat score.

Findings of other researchers (10, 46, 49) also indicate poor food selection practices. Young et al (49) indicated that younger, more highly educated homemakers had more variety in food choice. Waye (46) found only 7.5 percent of the low-income homemakers interviewed were considered to have adequate practices in food selection.

Post-course mean score was 4.78. Again only one-third of the homemakers scored over fifty percent. Any large increases in food choice scores were restricted to younger homemakers, homemakers who had previous exposure to high school home economics and to homemakers who had been on welfare for a short period of time (Table XXI). As the number of lessons attended increased, food choice ratings also increased.

The third conclusion of the study is that the course was ineffective in improving food choices such that these selections might more closely adhere to the recommendations of Canada's Food Guide.

OTHER MEASURES

Degree of Concern

Mean score in degree of concern was 7.26 pre-course and 7.22 post-course out of a possible ten points. There was no extensive change in degree of concern. Higher concern scores were attained by younger homemakers, homemakers who had a large number of young children, homemakers who had been on welfare a shorter time, and homemakers who had a higher level of living. There appeared to be some relationship between levels of knowledge and degree of concern, however, fluctuations are minor. The greater the homemaker's concern, the higher was the food choice score.

Level of Living

Level of living scores were identical pre and post-course. Mean score was 2.56 of a possible eight points. The only factor exhibiting relation to level of living was the number of children under eleven years. As the number of young children increased, the level of living decreased. Level of living was not pertinent to level of attainment in general knowledge of nutrition, knowledge of content of Canada's Food Guide, and food choice.

Clean - Neat Score

Mean clean - neat score was 7.33 of a possible twelve

points. Younger homemakers and those with smaller families had higher clean - neat scores. Post-course, the mean score was 8.74. The greatest gains were achieved by older homemakers, homemakers with less education, homemakers who had been on welfare for over two years, and homemakers with an average degree of concern. Although clean - neatness was considered in the assessment of this nutrition education programme, it was found to have no bearing on the level of attainment in general knowledge of nutrition, knowledge of content of Canada's Food Guide, or food choice.

Reports on the use of homemaking classes as a tool for the nutrition education of low-income homemakers implied that successes have been achieved (44, 47). This study confirms the success of such classes in raising the level of general knowledge of nutrition and knowledge of the content of Canada's Food Guide of the participants. The greater the number of lessons attended, the greater was the gain in knowledge. Course content had sufficient relevance and learner participation was sufficiently great to increase the level of nutrition knowledge regarding general information and the content of Canada's Food Guide.

In order to make the participant scores more meaningful in a broader context, some benchmarks were considered necessary for evaluation of their performance. To this end, three additional groups of homemakers were

interviewed. They were members of low-income families not on welfare, middle-income families, and upper income families. They were not representatives of their particular income groups. The ten low-income homemakers were randomly selected from a list of fifty names recommended to the author by various church community workers as homemakers who were managing on their income. The fourteen middle-income homemakers were selected from a list of seventy names of mothers and relatives who would be willing to participate volunteered by undergraduate home economics students. The eighteen upper-income homemakers were mothers of children attending the School of Home Economics nursery school. In all cases, the participation of these homemakers was requested by telephone after a brief explanation of the study. Homemakers were not told of the exact date the visit would take place, but were interviewed within three days of the call.

Mean scores for knowledge and food practices are given in Table XXII for comparison to the homemakers receiving public assistance. Prior to course participation, the welfare homemakers scored lower than all three groups in all three areas, but post-course, substantial improvements occurred in both knowledge levels. The welfare homemakers had a better knowledge of Canada's Food Guide than did the homemakers in the other three groups. Food choice scores improved only very slightly and remained far below the other three groups.

The author acknowledges the possible short-comings

TABLE XXII

COMPARISON OF MEAN SCORES FOR KNOWLEDGE AND FOOD CHOICE OF WELFARE VERSUS OTHER HOMEMAKER

GROUP CONCERNED \ FACTOR MEASURED	GENERAL KNOWLEDGE	KNOWLEDGE OF CONTENT	FOOD CHOICE
WELFARE (PRE-COURSE)	5.3	3.1	4.6
LOW-INCOME NOT ON WELFARE	6.2	3.4	6.0
MIDDLE INCOME	7.3	4.4	7.4
UPPER INCOME	9.1	4.7	7.0
WELFARE (POST-COURSE)	6.5	5.1	4.8
MAXIMUM POSSIBLE	13	10	10

involved in considering a twenty-four hour recall to be representative of a family's food pattern. There is a likelihood that pre-course and/or post-course recalls could be atypical of the particular family. However, this method of measurement was considered valid for assessment of change in food choice for the participant group. Pre and post-course group means indicated that the course did not appear to have affected a change in food choice scores. Similarily, for the comparison groups, the twenty-four hour period may not be typical of the family, therefore, the group means were used for comparison to participant scores.

If the ultimate goal of nutrition education is considered to be better eating practices from improved food choices, the course must be considered to have fallen short of the goal despite the increases in nutrition knowledge. The increased knowledge did not effect a change in practice.

Knowledge exists in a continuum from the very personal to the very impersonal (5). The point on the continuum which any item occupies depends on the meaning that item has for the individual, the degree to which he identifies himself with it or has reference to it. The knowledge that is at the very personal end of the continuum is most likely to affect behavior. It would appear that the course did not have sufficient reference for the participants to alter their behavior. Although the homemakers personally experienced the lesson material in the classes they failed to use the acquired

knowledge in the situations appropriate to it.

Alterations in the programme might have increased the possibility that the participants would have food choices more closely adhering to the recommendations of Canada's Food Guide. Improvements could have been made in the selection of the participants, in the pertinence of the practical lesson supplements, and the follow-up course of action.

More attention should have been devoted to the selection of course participants. Any homemaker showing a willingness to participate in the classes was enrolled in the course, however, not all homemakers derived equal benefit from the classes. The course might have been more beneficial had participation been restricted to change-ready homemakers. The study indicates that, generally, younger homemakers with previous exposure to nutrition information achieved the greatest improvements from the classes. Levels of attainment in all three major areas increased as attendance increased. Young homemakers were more inclined to attend the classes. Refinement of the criteria for selection of participants, with corresponding curriculum adjustments for the participant group, might have encouraged greater gains in both knowledge and practices.

Course presentation could have been more pertinent in the area of application of principles. The material was sufficiently meaningful to result in increased knowledge, however, the participants failed to adopt the required behavior

patterns related to food choice. Perhaps if more stress had been placed on situations in which the principles might be applicable, more improvements in practices would have occurred. The addition of a case-study type of approach might have achieved greater successes. A hypothetical problem setting might have given the homemaker the opportunity for problem-solving without frustrations, thus experiencing a satisfaction in employing a learned principle. Should a similar situation occur in the daily routine, the homemaker might be more inclined to apply the relevant principles of similar class solutions having already experienced the theoretical success of that procedure. In this manner, the acquired knowledge would be transmitted to the appropriate behavior in the form of food choices related to the recommendations of Canada's Food Guide.

Also, the addition of a follow-up team member might have aided in the adoption of improved food selection practices. Successes have been reported using home economist-homemaker aide teams in the lower socioeconomic groups (34, 36, 38, 39). The homemaker-aide does things with the homemaker rather than for her such that she might become sufficiently confident to continue her daily tasks on her own. The aide would have helped the homemaker recognize the situations in her own home where she might apply the principles learned in the classes. The aide's knowledgeability would also help bridge any gap which might have occurred between the applications suggested

by the middle-class oriented instructress and the homemaker's own situation. Follow-up help and encouragement might have been sufficient to instigate the adoption of improved food selection practices.

In conclusion, the homemaking classes might have been more successful in reaching the ultimate goal of food selection approximating the recommendations of Canada's Food Guide had these three innovations of refinement of participant selection, class stress on applications, and the follow-up of a homemaker-aide been incorporated into the programme.

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APPENDIX

APPENDIX A

LESSON OUTLINE

LESSON OUTLINE

Lesson Number	Class Topic	Practical Supplement
1	aims of the course (a) good nutrition (b) economical food buys	made sandwiches
2	Canada's Food Guide	made muffins
3	importance of a good breakfast	discussed food patterns, cost comparison of cooked versus dry cereals
4	shopping practices	demonstration on less expensive canned goods, meat cuts, and seasonal vegetables
5	use of skim milk powder	cost comparisons of homemade versus purchased food items
6	how to cook meat	made stew, hamburger in casseroles
7	meat substitutes	discussed buying and using eggs, cheese, baked beans, made souffle or jelly roll
8	baking	made pastry or simple cake
9	preparing and cooking vegetables	made cookies and slices
10	tea and social evening	display on comparative costs

APPENDIX B

CANADA'S FOOD GUIDE

CANADA'S FOOD GUIDE

DAILY RECOMMENDATIONS

MILK:	CHILDREN (UP TO ABOUT 11 YEARS)....$2\frac{1}{2}$ cups ADOLESCENTS.....4 cups ADULTS.....$1\frac{1}{2}$ cups EXPECTANT AND NURSING MOTHERS.....4 cups
FRUIT:	TWO SERVINGS OF FRUIT OR JUICE INCLUDING A SATISFACTORY SOURCE OF VITAMIN C (ASCORBIC ACID) SUCH AS ORANGES, TOMATOES, VITAMINIZED APPLE JUICE.
VEGETABLES:	ONE SERVING OF POTATOES. TWO SERVINGS OF OTHER VEGETABLES, PREFERABLY YELLOW OR GREEN AND OFTEN RAW.
BREAD AND CEREALS:	BREAD (WITH BUTTER OR FORTIFIED MARGARINE). ONE SERVING OF WHOLE GRAIN CEREAL.
MEAT AND FISH:	ONE SERVING OF MEAT, FISH, OR POULTRY. EAT LIVER OCCASIONALLY. EGGS, CHEESE, DRIED BEANS OR PEAS MAY BE USED IN PLACE OF MEAT. IN ADDITION, EGGS AND CHEESE EACH AT LEAST THREE TIMES A WEEK.
VITAMIN D:	400 I.U. FOR GROWING CHILDREN, AND FOR EXPECTANT AND NURSING MOTHERS.

APPENDIX C

INTERVIEW SCHEDULE

FOODS AND NUTRITION
SCHOOL OF HOME ECONOMICS
UNIVERSITY OF MANITOBA

Household name: _____ Household no. _____

Date: _____

GIVEN NAME	M or F	AGE	GIVEN NAME	Mor F	AGE

Family composition : M ___ F ___ 11-17 ___ 11-0 ___

1. Who usually buys the food ? _____ age: _____
2. Who usually prepares the food ? _____ age: _____
3. What was the last grade in school completed by the homemaker-buyer ?

___ 1-6 grade school
___ 7-9 junior high
___ 10-12 senior high
___ more than above, specify _____

4. Has the homemaker-buyer ever taken part in a course in:(specify if applicable)

homemaking _____
COOKING _____
home economics _____
health _____

5. Of what religion is the homemaker-buyer ? _____
6. Of what nationality is the homemaker-buyer ? _____
7. What was the last grade in school completed by the head of the family, if other than the homemaker-buyer ?

___ 1-6 grade school
___ 7-9 junior high
___ 10-12 senior high
___ more than above, specify _____

8. Is the family head employed ?

if yes, at what occupation _____
if no, what is the family income source _____

9. To the nearest $1000 please estimate the total family income ? _____
10. Approximately how much money is spent on food in a week ? _____

11. Do you have a telephone ? no 1 2 3 3+

12. Can you tell me the number of rooms that make up your home ? _____

Do you take a daily newspaper ? yes no

LR FURN	dr	ms	LR FLR	dr	ms	OUT APP	dr	ms	DST	+	-		
	cl	nt		cl	nt		cl	nt	DIN AR	+	-		
KTC CNT	dr	ms	KTC FLR	dr	ms	OD	unpls		DWEL	sle	mlt		
	cl	nt		cl	nt		pls	nap					

Now I am going to ask you several questions about food and food habits. If they have several answers, I will read all the choices and ask you to pick one. Please answer all the questions.

GK 1. Which one of the following do you think would be the best to use in place of meat ?

____ spinach
____ dried beans
____ whole grain cereals
____ squash
____ mushrooms

2. How often do you use meat substitutes such as eggs, cheese, etc. ? _____

3. Do you think you would save money by using meat substitutes ? yes no
Explain: _____

EE 4. Do you think you have learned anything about nutrition from: (check if applicable)

____ television
____ newspaper
____ pamphlets, booklets
____ magazines
____ radio
____ other people

CT 5. How often do you think a family should eat something from the meat group ?

____ three times a week
____ four times a week
____ once a day
____ two times a day
____ three times a day

6. Do you find meat expensive ? yes no

7. What two meats do you most often buy for dinner ? _____ _____

GK 8. Which one of the following is not a citrus fruit?

_____ oranges
_____ apricots
_____ limes
_____ grapefruit
_____ lemons

9. How often do you serve citrus fruit? _____

10. Do you find it expensive? Yes ___ No ___

11. In what form do you generally serve citrus fruit?

_____ fresh
_____ whole, canned
_____ juice
_____ other, specify _____

DC 12. Do you usually (if children in the home):

_____ plan hot lunches
_____ use leftovers
_____ let the children help themselves
_____ give children money to buy what they wish
_____ pack bag lunches

If no children in home (or when you are alone):

Do you usually make yourself a complete meal for lunch, omit this meal, or just snack? _____

_____

GK 13. If you were slimming, which one of these foods would be best to cut down on?

_____ milk
_____ butter
_____ cheese
_____ ice cream
_____ eggs

DC 14. Do you serve any foods that are good for your family, but that they do not like?

Explain _____

CT 15. Which one of the following types of vegetables do you think is <u>not</u> mentioned in Canada's Food Guide?

_____ yellow vegetables
_____ raw vegetables
_____ red root vegetables
_____ potatoes
_____ leafy green vegetables

16. How often do you serve fresh vegetables? _____

_____

17. Which ones do you think are expensive? (give 3)

_____ _____ _____

18. Which would you recommend as being inexpensive? _____

_____

_____

GK 19. Which one of the following foods is the best protein source?

_____ dried beans
_____ mushrooms
_____ fruit juices
_____ eggs
_____ spinach

GK 20. Calcium is a nutrient which should be included in the diet. Which one of the following foods is the best source of calcium?

_____ raw carrots
_____ milk
_____ orange juice
_____ liver
_____ wwhole grain cereals

21. How much milk do you buy in a week? _____

_____

22. Generally, in what form do you buy milk? (circle)

whole fluid	canned
2% fluid	skim fluid
dry powder	other, specify _____

GK 23. How often do you think is it recommended to serve eggs and cheese?

_____ two times a day
_____ once a day
_____ four times a week
_____ three times a week
_____ two times a week

24. What grade of eggs do you usually buy? (Circle)

large small

medium don't know

GK 25. Which one of the following do you think helps us to use our body energy efficiently?

_____ vitamin C
_____ carbohydrates
_____ B vitamins
_____ antigens
_____ the meat group

26. What food do you think is an inexpensive energy source? _____

DC 27. Do you serve any foods especially for your children that you would not serve if they were not present? _____

_____

_____

GK 28. Which one of the following do you think is not considered to be a whole grain cereal?

_____ Red River cereal
_____ oatmeal
_____ bran flakes
_____ corn flakes
_____ shredded wheat

CT 29. How often do you think should whole grain cereals be served?

_____ occasionally
_____ once a week
_____ two times a week
_____ three times a week
_____ once a day

30. How often do you serve whole grain cereals?

_____

31. Which cereal do you most often serve?

_____

32. Which one cereal do you think is economical? _____

CT 33. How much milk should a child under eleven(11) years of age drink per day?

_____ ½ cup
_____ 1 cup
_____ £½ cups
_____ 4 cups
_____ 1 quart

FH 34. If you had more money to spend on food, what one food would you buy because it is good for the children's health? _____

CT 35. Which one of the following statements do you think is found in Canada's Food Guide?

_____ skim milk powder is nutritiously good
_____ Vitamin supplements should be given if required
_____ A balanced diet is the key to slimming
_____ Eat liver occasionally
_____ Use butter never margarine

36. Do you use margarine? Yes ___ No ___
for cooking only? Yes ___ No ___

GK 37. Which one of the following vitamins do you think is important for the eyes?

_____ A
_____ D
_____ E
_____ C
_____ K

GK 38. Which one of the following do you think has the most vitamin A?

_____ green leafy vegetables
_____ raw apples
_____ oatmeal
_____ liver
_____ buttermilk

39. Do you serve liver? Yes ___ No ___ How often? _____

If not, why not? _____

_____

DC 40. Do you require that your family sit down at mealtime? _____

at which meals? _____

GK 41. Rickets can be prevented by having enough of a certain vitamin. Which one of the following do you think helps prevent rickets?

_____ A
_____ D
_____ E
_____ H
_____ C

42. If you have children, do you give them vitamin D capsules in winter?
Yes ___ No ___ not applicable ____

CT 43. How many units of vitamin D do you think does Canada's Food Guide recommend for growing children?

_____ 400
_____ 600
_____ 800
_____ 1000
_____ 10,000

CT 44. How many servings of vegetables including potatoes are recommended daily?

_____ one
_____ two
_____ three
_____ four
_____ five

45. What types of vegetables do you generally serve? _____
Name the three most common other than potatoes:

_____

_____

FH 46. In what terms do you think of a meal, that is, what goes into:

(a) breakfast _____

(b) lunch _____

(c) dinner _____

GK 47. Which one of the following do you think is <u>not</u> a use of protein in the body?

_____ building and repair of body tissues
_____ helping to clot the blood
_____ aiding growth
_____ preventing scurvy
_____ helping to protect the body against infection

48. What food do you think is an economical protein source?

_____

CT 49. Which of these statements do you think does not appear in Canada's Food Guide?

_____ One serving of potatoes is required daily
_____ One serving of citrus fruit is required daily
_____ Eggs and cheese should be served at least three times a week
_____ One serving of liver is required weekly
_____ Adults should drink one-half cup milk daily

CT 50. How many servings of fruit should be eaten daily?

_____ none
_____ one
_____ two
_____ three
_____ four

51. What three fruits do you most often buy?

_____ _____ _____

52. In what form do you generally buy fruit? (circle)

fresh canned frozen

GK 53. Which one of these foods should be included in the diet to build up the blood?

_____ grapefruit
_____ milk
_____ whole wheat bread
_____ carrots
_____ liver

GK 54. One of the following vitamins is necessary to help clot the blood. (stop bleeding). Which one of the following do you think it is?

_____ A
_____ D
_____ E
_____ K
_____ C

55. Have you ever heard of vitamin E? Yes ___ No ___
of vitamin K? Yes ___ No ___

56. Could you name a major source of vitamin E?

Yes, specify _____ No ___

57. Do you know what vitamin C is used for?

Yes, specify _____ No ____

58. How important do you think nutrition is in meal planning?

Very ____ Quite ____ Not ____

59. How important is cost in meal planning?

Very important ____ Quite important ____ Not important ____

60. How important is preparation time in meal planning?

Very ____ Quite ____ Not ____

61. How much time do you spend planning meals? _____

FH 62. What would you serve for dinner if you were short of money? _____

_____

FH 63. What two foods would you be especially certain to include in your family's diet even though you were short of money? _____ _____

64. How often do you serve:

bread	peanut butter
cheese	coffee
dessert	tea
eggs	soft drinks
macaroni	pork and beans
kool-aid	spaghetti
chicken	potatoes
fruit	green vegetables
milk	luncheon meat
sandwiches	hamburger
soap	weiners

65. Can you tell me exactly what you served your family at their last meal... and before that...etc. (for the last twenty-four hours)...

A.M.

Noon

P.M.

Evening