

DEVELOPMENT OF AN INSTRUMENT FOR THE
ASSESSMENT OF FOOD-RELATED VALUES
OF LOW-INCOME MOTHERS OF PRE-
SCHOOL CHILDREN

By

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TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
Description of the Problem.	1
Objectives of the Study	3
Significance of the Problem	4
Assumptions	7
Definitions of Terms.	7
Limitations of the Study.	8
Procedure	9
II. REVIEW OF THE LITERATURE	12
Selected Definitions of Values.	12
Characteristics of Personal Values.	20
Values and Behavior	24
Research Methodology,	26
Characteristics of Low-Income Family Life-Style	41
III. EXPERIMENTAL METHOD.	69
Selection of the Values	69
Collection of Descriptive Items	72
Selection of the Sample	74
Development of the Interview.	74
Pretesting the Interview.	76
Development of the Values Test Instrument	77
Pretesting the Values Test Instrument	78
Collecting the Data	79
Method of Data Analysis	79
IV. RESULTS AND DISCUSSION	82
The Interview	82
The Food-Related Values Interview	82
Food-Related Statements That Were Placed on Cards to Cards to be Sorted	85
Values Test Instrument.	88
The Values Test Instrument.	88
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.	99
Summary of Findings	99

Chapter	Page
Conclusions	100
Recommendations	101
BIBLIOGRAPHY.	102
APPENDIX A.	113
APPENDIX B.	117
APPENDIX C.	131
APPENDIX D.	137
APPENDIX E.	143
APPENDIX F.	146
APPENDIX G.	150

LIST OF TABLES

Table	Page
1. Summary of terms referred to as values by investigators. . .	15
2. Summary of methods used by investigators	28
3. Hierarchal ranking of values obtained from the interview . .	83
4. Hierarchal ranking of value statement numbers.	84
5. Summary of Stillwater results using the values test instrument	89
6. Comparison of interview and values test instrument results .	90
7. Comparison of values determined by use of the values test instrument	91
8. Pairings of values statements for food-related values test statements	138
9. Computer program for random selection of value statements pairs for values test instrument	139
10. Random pairing of value statements as selected by computer program.	140
11. Sequence of selection of statement pairs	142
12. Results of Stillwater interviews	144
13. Determination of Kuder-Richardson reliability coefficient (pq)	147
14. Determination of variance term in the Kuder-Richardson formula 20	149
15. Value test instrument results of Stillwater.	151

LIST OF FIGURES

Figure	Page
1. Graphical presentations of hierarchy of values of homemakers with varying levels of education. Adapted from tabular form presented by Kohlmann (60)	36
2. Graphical presentation of the hierarchy of values held by homemakers with varying levels of education. Adapted from tabular form presented by Kohlmann (60).	37

CHAPTER I

INTRODUCTION

Description of the Problem

Malnutrition is the most important international problem facing the world today (10)(49) because three hundred million children or two-thirds of the world's population are suffering from varying degrees of malnutrition (112)(113). Malnutrition is said to be due to an inadequate intake of quantity or quality of food. Factors predisposing to malnutrition are low socio-economic level, lack of education, poor health, diarrheal infections, parasites, and wrong attitudes toward food. Malnutrition and infection is mainly responsible for the high morbidity, mortality, retarded growth and development of pre-school aged children (111). Malnourished children are easy prey to infection and may suffer permanent mental and physical change (81).

The mortality rate among children afflicted with malnutrition is extremely high. There is also a major problem with malnourished children who survive (97). Depending on the age of the onset of malnutrition and the severity, the child is left with stunted mental and physical development from which it is unlikely he can ever recover (98). He is unable to develop to his fullest intellectual and physical potential. This condition results in an extreme economic and social development handicap of not only the malnourished children but also the family in particular and the nation in general.

It is too late to wait until the children are already of school age to reach them since irreparable damage will often have already been done. The younger children must be given an adequate diet early since studies indicate that the last three months of pregnancy and the first six months postnatally are the most crucial times for mental development, and that "90 per cent of the total postnatal brain growth occurs in the first three years" (67, p. 7). Results of recent research indicate that poor diets occur at each income level in the United States with four times as many occurring in households at lower income levels (65). Various studies indicate that inadequate diets, poor housing, poor clothing, and poor health are closely related to inadequate income (73). It is therefore of primary importance that the mother in a low-income family be educated how to best meet the basic nutritional needs of her children. To a great extent the entire life of a child is determined "by the food his mother gives him during his first five years" (95, p. 1).

If educators are to be effective in creating behavioral changes with regard to food selection, preparation and consumption, they must know how to bring about changes as well as recognize needed changes (137). Information on behavioral changes "should be based on valid research focused on the specific problem: How do we enable and motivate a person to eat enough of the foods needed to have good health?" (137, p. 35). Whatever the educator does, it must be compatible with the family's income, goals, values, and level of understanding (73). However, more information about low-income families and the way they live is needed (141). Also, more information is needed on how to motivate families to do something about their situation (140, 141).

It is believed by researchers that knowledge of food-related values could enable educators to plan even more effective programs of education (3).

Many low-income mothers of preschool children in the United States face both the difficulty of having insufficient income and a lack of nutrition education. It is also commonly believed that people learn more easily and quickly when functioning in their areas of interest. Nutrition educators could more effectively plan an educational program of interest to the low-income mothers of preschool children if the hierarchical ranking of food-related values were known. It was therefore decided to try to identify food-related values of low-income mothers of preschool children in Stillwater, Oklahoma. Since participation in the Head Start program is restricted to low-income families, mothers of children in the Stillwater Head Start and Stillwater Neighborhood Nursery, which encompasses the Head Start program, were selected as subjects.

Objectives of the Study

The objectives of the study were:

1. To review the literature for insight into factors which are known to affect forces behind food habits and methods of change.
2. To review the literature on characteristics of low-income families, the extent of poverty and its consequences.
3. To develop a values test instrument to identify the food-related values and indicate their relative importance to mothers in low-income families.

4. To provide implications for college and university food and nutrition curricula so that emphasis will be placed on those areas of nutrition education identified as important in this study.

Significance of the Problem

Nutrition educators know the kinds and amounts of food needed for good health and well-being. Such foods are available in all regions of the nation. However, low-income families do not have the financial resources to buy whatever food they need and desire. It is therefore essential that these families be well informed in how to buy, prepare and store food.

The first comprehensive survey to assess the nutritional status of the population in the United States was the National Nutrition Survey conducted in 1968 (107). A White House Conference on Food, Nutrition and Health was held in Washington, D. C. in December, 1969, as a result of the findings from the nutritional status survey. Many of the recommendations of the conference present important implications and challenges to persons concerned with the nutrition education of mothers in low-income families. Some specific recommendations from the Panel on Community Nutrition Teaching are as follows:

Recommendation 2: COMMUNITY FOOD AND NUTRITION EDUCATION.

It is essential that families know how to buy, prepare and store food. In particular, low-income families need information on (a) family meal planning to provide nutritious, satisfying meals at least cost, (b) how to buy food to get the most nutritive value for the money spent, (c) how to prepare food to preserve nutritive value while appealing to family tastes and considering cooking facilities, (d) safe and sanitary methods of storing, handling and serving food, and (e) the availability of local food programs and how to make the best use of them... (137, p. 33).

New approaches and methods of educating low-income families should be tried and evaluated to improve their effectiveness. Applied research by various interested agencies and institutions should be aimed at motivating beneficial changes in food-related behavior.

Various socio-economic and cultural factors which may influence food choices are: (a) poverty, (b) pleasure, (c) home and family life, (d) established food patterns, and (e) various personal aspects of food likes and dislikes (137). It can therefore be seen that effecting changes in food-related behavior is very complex.

Nutrition education requires effective communication (137). The following are essential for effective communication: (a) respect for and belief in the people, (b) allowing the people to make their own decisions, (c) practical and realistic education based on the needs of the learner, and (d) participation of both the teacher and the learner in the learning process (137).

The educational task is a complicated and complex one. Some of the complicating factors are: (a) the great variety of America's cultural patterns, emotional prejudices, and eating habits; (b) food requirements based on religious beliefs; (c) complexities of nutrition science; (d) limitations on food-selection based economics; and (e) the rapid changes taking place in food technology and marketing. The task stated above is often further complicated by decided differences in the cultural, social and value gap between the educator and the low-income family members. It is possible that low-income families present the most difficult and the most practical problems the home economics profession has ever faced (141). It should be pointed out, however, that consumer education is important in influencing the food consumption

pattern in any country (89).

It has been reported in various studies (a) that a positive relationship exists between the family income level and the adequacy of nutritional intake. This fact is shown in the results of a 1965 nationwide survey of household food consumption indicating the per cent with poor diets (18). In the article, the following were cited as being poor:

1. Households with income of under \$3000, 36 per cent.
2. Households with income from \$3,000 to \$4,999, 24 per cent.
3. Households with income from \$5,000 to \$6,999, 18 per cent.
4. Households with income from \$7,000 to \$9,999, 12 per cent.
5. Households with income of \$10,000 or above, only 9 per cent.

There are approximately three million families, averaging four persons in size, who exist on an average of \$1,460 per year (18). A family of four, with only \$1,460 per year, cannot have an adequate diet, pay rent, clothing, transportation, medical bills and other family essentials. It has been estimated that one child in three is being brought up in poverty and in a family that has the characteristics of the "have-nots" (84). It is therefore very important that low-income families receive adequate information in wise food selection, preparation and storage.

Since the mother is quite frequently involved in making food-selection decisions for the child, much nutrition education should be oriented towards the values most important in her decision making (37). The greatest potential assistance to the mothers lies in the decision-making processes which precede the actual shopping, thereby effecting a change in the food choices (83). Additional help could

be given by providing nutrition information at the points of purchase (4).

If the mothers' food-related behavior is to be affected, the food-related values held most important by her need to be known. Most writers agree that values stem from experience (61). Thus, research in what the mothers actually do can provide useful information about the values important to them. Such research is very important since values effect the way an individual will react when confronted with a situation permitting more than one course of action (61).

Assumptions

This study was planned and conducted on the basis of the following underlying assumptions:

1. A test instrument can be developed to identify the most important food-related values of the mothers in low-income families.
2. Nutrition education based on the values held most important by mothers in low-income families can effectively change the mothers' food-related behavior.

Definitions of Terms

After a review of the literature, Engebretson's definition of a value was accepted in this study and is as follows:

Values - "Values are conceptions of the desirable which affect an individual's choice among possible courses of action (36, p. 8).

Kohlmann identified a number of values which the author elected to use in this study. Of the eight values Kohlmann identified, six were

accepted by the author. In a modified form they are defined as follows:

Economy - Use of money, goods, services and time to obtain the greatest amount of return from the resources used for food.

Health - State of physical and mental well being.

Work efficiency - Accomplishing a task or producing a food product to meet a desired standard in the shortest time and with the least possible expenditure of time and energy.

Family life - Sharing of common goods and experiences, related to food, by a group of individuals who have a blood or marriage relationship and who are living together in an established home.

Education - Purposeful self-improvement involving some form of foods and nutrition learning for self or family.

Friendship - Relationship between two people, involving food, and characterized by mutual attraction.

Limitations of the Study

The sample selected for this study were only 42 mothers of children in the Stillwater Head Start and Stillwater Neighborhood Nursery, which encompasses the Head Start Program. The interview questions and food-related values test were pretested with eight mothers in low-income families in Pawnee, Oklahoma.

The food-related values test used in this study was made from the ranking of value statements obtained in interviews. The questions used in the interview were devised by the author and approved by six experts in the field of nutrition. The experts were all specialists in the area of foods and nutrition, had an understanding of the concept of values, and had experience in working with low-income families.

One person was a Professor in Nutrition at Oklahoma State University, one was a Professor in Nutrition at Oklahoma College of Liberal Arts, three were Food and Nutrition Specialists in the Oklahoma State University Extension Service and one was Area Consultant Dietitian with the United States Indian Health Service.

Implications for the educators and nutritionists working with mothers in low-income families were only obtained from analysis of the data acquired from the researcher's interview and the food-related values test.

Procedure

The procedures used in the study are given in this section as follows: (a) select the sample, (b) develop the interview, (c) develop the food-related values test, (d) collect the data using this test instrument, and (e) analyze the data.

Selection of the sample. The personnel of the Stillwater (Oklahoma) Head Start Center and Stillwater Neighborhood Nursery submitted names of mothers of children enrolled. These mothers were chosen as subjects. The mothers whose names were submitted were visited and the purpose of the study was explained. A total of 42 mothers agreed to participate in the study.

Development of the interview. In depth review of the literature was given to values, low-income life styles, and the various techniques that have been used for interviewing and the development of instruments. The definition of value was decided upon and six values were selected as being most appropriate. Only six values were selected since Kohlmann (60) had recommended that six be used. Also it was believed

that six values were the maximum number that could be covered in a thirty minute interview period, including the time required to read the value statements to the mother and to answer any questions. It was desired that the test should not require more than thirty minutes to complete to prevent the mother from losing interest in it.

Development of the food-related values test. This instrument was constructed from the results of the interview. It consisted of 60 paired value statements designed to make use of the paired comparison and forced choice technique.

For the purpose of pretesting the food-related values test, the eight mothers in Pawnee, Oklahoma who had helped test the interview also cooperated. In contrast to the interview where the mother indicated the degree to which a particular value statement best described her behavior, the values test instrument forced the mother to decide between two value statements. Hence, the scores of the interview and that of the values test instrument cannot be directly compared but only the relative ranking of the values as indicated by the results from each instrument.

Collecting the data. Each of the mothers were visited by the researcher to give instruction in making the selection they considered important in each pair of statements, reading each statement in the values test instrument and to answer any questions the mother might have about the intended meaning of any statement not clear to her. It was felt that the subjects could best answer the questions if someone was available while the test was being administered.

Analysis of the data. The results of the test instrument administered were recorded and prepared in tabular form to facilitate the

analysis of the data. Statistical analysis was employed to establish the validity of the interview. Since the four statements of the interview receiving the highest scores were used in constructing the food-related values test instrument, it was felt that the validity of the test instrument would be inferred from the validity of the interview. The reliability of the interview was established with the use of the Kuder-Richardson formula 20 (39). The reliability coefficient of the Kuder-Richardson formula 20 obtained from the statistical analysis of the interview results indicated a high degree of reliability of the interview.

CHAPTER II

REVIEW OF THE LITERATURE

No studies of food-related values of low-income mothers of pre-school age children were revealed in the literature. It was therefore felt that results of research in this area would be of significant value to home economists and educators working with low-income families in helping them with their nutrition problems.

Selected Definitions of Values

The literature of values is voluminous with contributions from educators, sociologists, and anthropologists (13). The literature contains substantial discussions on values but very little research on values (115). Therefore, it was necessary to select an operational definition for purposes of this study. The following definition as developed by Engebretson was accepted:

Values are considered to be conceptions of the desirable which affect an individual's choices among possible courses of action. Accordingly, values are conceptualizations which are beliefs or ideas. But the beliefs or ideas are not about what exists or what is desired but are about what is desirable or what ought to be. As such, values may initiate behavior and act as channels in shaping it. They are a part of the preferential behavior but not the whole of it and are differentiated from other terms such as motives, wants, and needs. (36, p.8).

Engbertson's definition is compatible with those of M. B. Smith, Jacob and Flink, and Kluckhohn (115, 51, 59). Smith has defined values as "conceptions of the desirable that are relevant to selective behavior" (115, p. 331). Jacob, Flink and Shuman identified values as "only the normative by which human beings are influenced in their choice among the alternative courses of action which they perceive (51, p. 10). A value, as expressed by Kluckhohn, "is a conception, explicit and implicit, distinctive of an individual or characteristic of a group of the desirable which influences the selection from available modes, means and ends of action" (59, p. 396).

Williams has defined values as "those conceptions of the desirable states of affairs that are utilized in selective conduct as criteria for preference or choice or as justifications for proposed or actual behavior" (139, p. 23). Woodruff has defined a value as a "generalized condition of living which the individual feels has an important effect on his well being" (142, p. 645). DiVesta has defined a value as "any generalized circumstance of living which an individual consciously or unconsciously believes to have an effect on his well-being or self realization, either directly to himself or to those with whom he is concerned" (30, p. 7). This definition was accepted by Barbour (3). Hawkes has defined a personal value as a "circumstance of living, process or a relationship which the individual cherishes as important to his well being and self realization" (46, p. 7).

The amount a person values a given end is not reflected in his speech about the value but in actions in obtaining and using the means without which it can be attained (124).

The writer is in agreement with Kluckhohn who has noted that the literature often considers values as attitudes, motivations, objects, measurable quantities, substantial areas of behavior, affect-laden customs or traditions, and the relationships such as those between individuals, groups, objects, and events. The only general agreement, he states, is that "values somehow have to do with normative as opposed to existential propositions (59, p. 390).

Regarding the relationship of existence to values, Kluckhohn has expounded as follows:

Existence and value are intimately related, interdependent, and yet - at least on the analytical level - conceptually distinct. It is a fact of introspection and of observation that there are three fundamental types of experiencing: what is or believed to be (existential); what I and/or others want (desire); what I and/or others ought to want (the desirable). Values are manifested in ideas, expressional symbols, and in the moral and aesthetic norms evident in behavioral regularities. Whether the cognitive or the cathetic factors have primacy in the manifestation of a value at a particular time, both are always present. Values synthesize cognitive and cathetic elements in orientations to an object world, most specifically a social object world - that is, a social relationship system. Values define the limits of the permissive cost of an expressional gratification or an instrumental achievement by invoking the consequence of such action for the other parts of the system and for the system as a whole (59, p. 394).

Terms referred to as values. Studies concerning terms referred to as values in the literature are given in Table 1. Twenty-eight studies containing a total of 109 grouped terms may be noted. Fifteen investigators studied family life or family centrism; 13 studied friendship and health; 12 studied economy; ten studied freedom; seven studied aesthetics, concern for others, education, new experience, religion, and status; six studied comfort and efficiency; five studied security and pleasure; four studied achievement, beauty, convenience, social activity and equality.

TABLE 1 Summary of terms referred to as values by investigators

Terms:	Total No. of Values Investigated	Investigator	Total No. of Times Investigated
	6	Allport, et al. (2)	
	8	Barbour (3)	
	8	Bowman (9)	
	9	Beyer (7)	
	10	Cutler (27)	
	9	Dyer (32)	
	9	DiVesta (30)	
	9	Engbretson (36)	
	3	Fortenberry (41)	
	12	Harder (44)	
	10	Hawkes (46)	
	15	Heal (48)	
	7	Johnson (53)	
	12	Ketchum (55)	
	11	Kimball (56)	
	8	Kohlmann (60)	
	9	Lindsey (72)	
	9	Martin (80)	
	5	Phelan (94)	
	14	Price (96)	
	12	Richards (99)	
	5	Ridley (100)	
	36	Rokeach (11)	
	9	Schlater (108)	
	9	Selby (110)	
	3	Smith, V. (116)	
	15	Williams (139)	
		Total No. of Times Investigated	
Achievement			1
Activity/Work			4
Aesthetics	x		1
Affection	x		8
Ambitious	x		2
Appearance	x		1
Beauty	x		2
Broadminded			4
Capable			4
Challenge	x		1
Cheerful			1
Cleanliness			1
Comfort	x		2
Comfortable	x		6
Life			x
Concern for Others	x		1
Conformity	x		7
Convenience	x		1
Cooperation	x		4
Courageous			4
Dependability			1
Democracy			1
Develop as a Person	x		1

TABLE 1 (Continued)

	Allport, et al. (2)	Barbour (3)	Bowman (9)	Beyer (7)	Cutler (27)	Dyer (32)	DiVesta (30)	Engebretson (36)	Fortenberry (41)	Harder (44)	Hawkes (46)	Heal (48)	Johnson (53)	Ketchum (55)	Kimball (56)	Kohlmann (60)	Lindsey (72)	Martin (80)	Phelan (94)	Price (96)	Richards (99)	Ridley (100)	Rokeach (101)	Schlater (108)	Selby (110)	Smith, V. (116)	Williams (139)	Total No. of Times Investigated
Durability													x															1
Economic	x																				x							2
Economic Concern							x											x						x				3
Economy	x	x	x	x	x								x			x	x				x	x	x		x			12
Education	x					x						x				x	x				x				x			7
Efficiency	x															x	x				x				x		x	7
Equality				x																			x			x		4
Excitement							x				x																	2
Exciting Life																							x					1
External Conformity																										x		1
Faith												x																1
Family Life/Centrism		x	x			x	x	x	x	x	x			x		x	x				x	x			x	x		15
Family Security																							x					1
Fashion Interest																						x						1
Forgiving																							x					1
Freedom			x		x	x		x	x		x			x	x								x				x	10
Friendship				x		x		x	x	x				x	x	x	x				x		x		x	x		13
Happiness																							x					1
Harmony																							x					1
Health	x	x	x	x	x				x		x					x	x				x	x			x			13
Helpfulness														x	x								x					3
Honest												x												x				2
Hobbies				x																								1
Humanitarianism																							x			x		2
Imaginativeness																							x					1
Independent																							x					1
Individual Personality																										x		1

TABLE 1 (Continued)

	Allport, et al. (2)	Barbour (3)	Bowman (9)	Beyer (7)	Cutler (27)	Dyer (32)	DiVesta (30)	Engelbreton (36)	Fortenberry (41)	Harder (44)	Hawkes (46)	Heal (48)	Johnson (53)	Ketchum (55)	Kimball (56)	Kohlmann (60)	Lindsey (72)	Martin (80)	Phelan (94)	Price (96)	Richards (99)	Ridley (100)	Rokeach (101)	Schlater (108)	Selby (110)	Smith, V. (116)	Williams (139)	Total No. of Times Investigated
Privacy							x				x	x																3
Prestige				x	x	x																						3
Productivity								x										x						x				3
Progress																										x		1
Protection								x											x					x				3
Racism																												
Superiority																										x		1
Recreation	x																											1
Recognition								x	x	x				x	x			x						x				7
Religious/ Religion	x					x	x			x				x	x					x	x							7
Respect												x																1
Response								x										x						x				3
Responsible																							x					1
Savings																			x									1
Safety				x									x															2
Salvation																								x				1
Science/ Secular																										x		
Rationality																										x		1
Security									x	x			x	x							x							5
Self Control																							x					1
Self																												
Expression																					x							1
Self Respect																							x					1
Sharing																		x										1
Shared																												
Experience								x										x						x				3
Social																												
Activity	x						x											x			x							4

Kohlmann did not consolidate groupings and found 109 different terms which have been referred to as values among 18 different studies investigated (60). Schlater reported that 1833 identifiable values were coded by type (108).

A values inventory can never be complete since a property of valuing is that it can never be closed. Furthermore, it would not be realistic nor desirable to attempt to obtain a complete inventory and analysis on data concerning values as such (139). The studies found to contain any food-related values were conducted by Kohlmann (60) and Ridley (100), both in the area of home economics education.

Characteristics of Personal Values

Concepts

There seems to be general agreement among researchers that the most basic characteristic of personal values is that they are concepts (61). Values are considered to be conceptions or abstractions which are drawn from a mold of personal immediate experience (36, 108). They are considered to be more than pure sensation, emotion, impulse and reflex (21). One is not always highly conscious of the conceptual aspect of a value nor is it always implicit (21).

A conception, according to Kluckhohn, "identifies value as a logical construct comparable to culture or social structure" (59, p. 395). In explaining his statement, he compared culture with values and said values are no more observable than culture. However, both are based upon what is verbalized as well as the actions of individuals which convey inference and abstractions (59).

DiVesta refers to concepts as "mental images of all the things an individual has experienced" (30, p. 7). At times, they have been evoked upon as goals to attain. He considers values to be among these concepts although concepts are sometimes seen as ways of reaching goals. At this state, he considers them to be concepts of processes or process concepts which represents the means by which an individual attains his positive values and avoids the negative ones (9). Barbour has defined a process concept as "a generalization which indicates how an individual believes a goal or value can be attained" (3, p. 3).

Stability of values. Even though values are considered to be relatively stable, values are altered during the life cycle. The amount of change depends on different situations, experiences and conflicting possibilities (61). For example, in the study of values related to housing, family centrism has been reported to be a theme among pre-school families. During the years when children are of school age, individuality, privacy and equality have appeared more as a predominate theme, whereas it is changed to personal and social orientation among retirees (31). Findings of Barbour have indicated that among students, values change as they develop, but value patterns appear to be fairly resistant to change (3).

Conceptions of the desirable. Values have to do with what is considered desirable. The desirable has often been used interchangeably or confused with concepts such as wants, needs, desires, goals, interests and attitudes. Wants, needs and desires are below the level of abstractions which characterize values since they refer to specific behavioral states or physiological stresses. Goals, ends-in view, interests and attitudes are lacking in the necessity or personal

demanding property of values although they appear to be on a similar level of abstraction. Conception of the desirable affect the selection of goals or ends of action, the modes and means of reaching the desired ends (108).

Courses of action. Choice of the courses of action are influenced by an individual's values. In this way, goals or ends-in-view are distinguished from values (91, 108). Values are determinants of behavior. The choices one makes or the way he reacts in a given situation are reflected in his values (60). Given a choice, a person would be most likely to select the course of action considered most important to him. The course of action would be influenced by his values.

Values seem to have a polarizing affect on an individual's impulse or course of action (21). An individual's actions are usually the result of a compromise between values and other aspects of a situation. It should be possible to use values as a guide for predicting behavior (7). Therefore, a value study should have implications for nutrition education of low-income mothers of pre-school age children. As has been pointed out by Pascual, knowledge of a value system would aid an agent of change in predicting how well the information he is trying to impart will be received and acted upon. Community nutrition workers are certain to meet difficulties in effecting change when health and nutrition are not held high in the rank of priorities (91).

Implicit and explicit values. Value configuration studies are difficult since only a part of the values is usually available to the immediate consciousness. Values held consciously are said to be explicit. Those unconsciously held are implicit (108). An implicit value has the potential of being expressed verbally by both actor and observer,

but they are conceptions in the state of abstractness and generalized notions. The quality of being potentially expressible in rational language is a necessary test of a value. The implicit values may only be noted indirectly by behavioral actions or indirect verbalization of the pertinent values (59). Explicit values are those which can be openly and clearly recognized and can be verbalized in undisguised terms (12).

Stated in another way, explicit values are those which are readily asserted or expressed and can be verbalized by an individual because of his being aware of them. The implicit values are those which are inferred from a person's behavior. He may be unaware of their existence (4).

Values and learning. Values are apparently a learned element in behavior (59, 47). Paschal, in referring to children, has said that values are learned by valuing (92).

Education and learning involves change (3, 9). Learning is dependent upon behavioral changes which necessarily involve personal values (3, 9). Values are important and one way their hierarchy can be determined roughly is to observe which values are sacrificed in favor of others (21). A values test reveals individual personal values of a given area in the test (142). Although value patterns have been said to be resistant to change, it has been noted that change must take into account individual value patterns in effective education (3). A priority of values would be helpful as a basis for determining the emphasis of most probably productivity. To illustrate the point, for example, the value of work efficiency is of negligible importance to a given population. The education for the purpose of work efficiency would likely

not be very productive.

Values and Behavior

Goals. Goals are sometimes confused with values (59). Although values are not the concrete goals of behavior they are aspects of the goals. Values have appeared as the criteria against which the goals were chosen. The values have thus been the implications of the goals in a given situation (7, 62). Individuals set their own goal values which are their aims and virtues (59).

Goals constitute a hierarchal order in which almost each goal stems from a lower one leading to a higher one. In such case, most goals are means to higher ends which eventually become ultimate ends or values (61).

According to Barbour, a goal is an "intermediate step between a process concept and the value to which it is related" (3, p. 3). Self realization is achieved with the attainment of the goal (3).

Kohlmann views personal values as both a means in achieving a goal as well as an end in itself (61). Barbour has directly related the significance of goals to nutrition. A useful background for the development of sound nutrition teaching methods may be acquired through deeper insight into the interests, goals, and values of students and the manner in which these factors change at various levels. If teaching is to bring about change, the student must see a relationship between what is being taught and his goals. Only when material being presented is directly related to the goals of the student will the learner maintain a high level of interest and learning (3). The writer feels this has special significance to nutrition education curriculum

and to educators concerned with low-income mothers of preschool age children.

Attitudes and preferences. Attitudes change when a value pattern is altered (142). The difference between a value and an attitude is that a value is what is desirable while an attitude may refer only to that which is desired. A preference is differentiated from a value in that a preference is usually based on the wide range of experience of an individual and unjustifiably based on moral judgements or commonly accepted standards. Values tend to endure but the process by which preferences and attitudes become values is unknown. Preferences and attitudes tend to change (7). Distinguished in another way, a value is more than a preference although it is a preference which can be felt or justly considered morally, aesthetically or by reasoning. The values are ideas which formulate action commitments (59). An attitude has also been explained in terms of how an individual feels a situation is going for him in terms of his important values (30).

Attitudes are highly internalized by an individual and infer what is considered to be proper. The emotional basis of food is acquired in childhood through unconscious intent. Its roots are in attitudes which have been overtly expressed by parents. Attitudes are thus transmitted and embrace influential ideas determining the course of action to be taken regarding food (91).

Motives. The term motive is derived from a Latin word which means "to move" (3, p. 15). Motivation has been referred to as that which moves a person to activity (3). Motives are one of the elements which influence the direction in which action is taken (7).

Motives and values must not be confused with each other but they

are closely linked. They rarely coincide completely. Values are an element in motivation as well as in determining action. To define the involvement of motivation with values, Kluckhohn has said that values are the part of motivation which may be referred to as standards, either personal or cultural, and are not derived only from immediate tensions or situations (59).

A given value may have a strength that is relatively independent of a given motive, though it remains in some sense a function of the total motivational system. For example, a given value may be simultaneously reinforced by motives for achievement, social approval and security (55).

The question of why people react as they do in a particular situation involves the problem of motivation. In part, the answer may be said to be due to man's biological heritage which provides him with drives which are innate, unlearned, or primary motives (3). Barbour has clearly indicated the significance of motives to nutrition education with the following statement: "To develop effective teaching methods, it is necessary to understand the motives of those who are taught (3, p. 2). Nutrition educators have often been met with resistance in attempts to change food habits. A lack of motivation appears to be one of the crucial factors to accomplish the change. More research is needed to determine the motivating forces affecting change in food habits (3).

Research Methodology

Different researchers have attempted the study of values. Various methodologies have been utilized, depending upon the type of study and

preference of the researcher. As an example, a summary of various types of methodologies utilized by researchers is given in Table 2.

The theses reported by Barbour (3), Kohlmann (60), Phelan (94), Egebretson (36), Schlater (108), Ridley (100), Hawkes (46), and DiVesta (30), have been the primary sources of methodology and/or definitions of terms utilized in this study.

The study made by Barbour (3) was to determine whether process concepts of a selected group of seventh-grade students changed as they applied their learning of principles and facts. The study assumed that a student could become interested in nutrition and motivated to maintain this state. At that time, there was no evidence to indicate that values, goals or process concepts had even been used consciously and concurrently in nutrition education. The hypothesis was that consideration of process concepts and values in relation to valid factual generalizations form the basis of an effective nutrition education program.

Generalizations in the field of nutrition, approximately 292 in number, were classified according to developmental tasks. These generalizations were used as a basis for teaching seventh-grade students and college freshman women. After being taught by a variety of methods, the students in each group were requested to state generalizations. These were classified by a common method and more than half of the generalizations made by each age group were found to be correct.

With the use of a values test developed by Hawkes (46) and DiVesta (30), value patterns were established for girls and boys in grades five, seven, nine and 13. This was for the purpose of identifying differences that might be used as guides in the planning of curriculum content.

TABLE 2 Summary of methods used by investigators

Method Used	Name of Investigator													
	Allport (2)	Barbour (3)	Beyer (7)	Bowman (9)	Bulatao (14)	Cutler (27)	DiVesta (30)	Deyer (32)	Engbretson (36)	Fortenberry (41)	Harder (44)	Hawkes (46)	Heal (48)	Johnson (53)
Case Situation							X		X		X	X		
Constructed Typology									X					
Free Response or Open End Statements, Stories, or Pictures		X		X	X	X			X			X	X	
First and Last Choice Statement													X	
Forced Choice or Paired Comparison		X		X		X	X			X		X	X	
Intensity of Agreement										X			X	
Projective Stories				X				X						
Q Technique														
Rank Order						X		X				X		
Reason for Activities								X						
Scale Analysis			X											X

TABLE 2 (Continued)

Method Used	Name of Investigator													
	Ketchum (55)	Kirball (56)	Kohlmann (60)	Lindsey (72)	Martin (80)	Phelan (94)	Price (96)	Richards (99)	Ridley (100)	Rokeach (101)	Schlater (108)	Selby (110)	Smith, V. (115)	Woodruff (142)
Case Situation														
Constructed Typology				x										
Free Response, or Open End Statements, Stories, or Pictures					x									
First and Last Choice Statements				x				x	x			x		
Forced Choice or Paired Comparison			x										x	
Intensity of Agreement														
Projective Stories														
Q Technique						x								
Rank Order			x					x		x			x	
Reason for Activity						x								
Scale Analysis								x				x		

Process concepts of seventh- and thirteenth-grade students were determined additionally. This was accomplished with the use of response to interview questions related to nutrition. The values which the process concepts appeared to imply were used to attempt to determine the goals and values related to nutrition. The values obtained by the two methods were not found to be comparable without additional refinement, according to recommendation by the researcher. However, distinctive differences in values for each grade were noted and Barbour also recommended that the differences: (a) be recognized for motivation in nutrition education, (b) serve as a basis for selection of subject matter and (c) serve as a basis for selection of the method used in teaching the subject matter.

Interview questions related to facts and principles of nutrition were used to determine the process concepts of seventh- and thirteenth-grade students. Sixty-two questions were used with seventh-grade students and 67 were used with thirteenth-grade pupils. Of this number, approximately 43 process concepts were included. Resulting goals and values implied by the process concepts were assigned by the investigator and ranked according to the mean number of process concepts related to each goal and value. The concepts obtained were classified under the following five headings: physical characteristics, food preferences and practices, relations with peers, relations with adults, and performance in work and play. Responses to the interview questions yielded 14 values and three goals. Health appeared to be the most prominent goal related to a comparison of health-related nutrition. Process concepts of seventh- and thirteenth-grade students were included (2). The study was in great depth and this investigator found it to

be of much value in the present study.

Hawkes (46) developed a values test on the basis of the following hypotheses: (a) personal values are motivating forces; (b) they are developed through experience; and (c) measurement of the values facilitates needed understanding of the motivations of a group and/or individuals. He reviewed the values-testing movement which began with Allport and Vernon who investigated the following values reported by Spranger: theoretical, economic, aesthetic, social, political, and religious. Woodruff (142) introduced the second movement with his work in A Study of Choices. Using methods developed by Woodruff, Hawkes developed a value inventory called, Making Choices. Values to be measured were selected through observation and the writings of students. The ten values selected may be found in Table 1. Ninety items representing the ten values were arranged in groups of threes. The testee then ranked the three statements according to his feelings of the prominence held by each statement.

Item validity was determined with the use of an item analysis and differentiating ratio. Each value was compared with each other value in the calculations of the inter-correlations. Inconclusive reliability was determined by the test-retest method. The data provided some evidence as to the nature of values. He found that values undergo change, increase in complexity, and both increase and decrease as learning and maturation occur. The test was deemed suitable for obtaining a limited perspective into important motivating forces in the lives of children between nine and 13 years of age. It can be used for making certain generalizations of groups.

The chief limitations of the study, Hawkes felt, was in the area of

of test validity. Although **face** validity was indicated, there was inconclusive evidence that what had been measured as a value was the actual underlying dynamic behavior. The personal value, however, was felt to have operational significance. Suggestions for work centered around the accumulation of additional data.

The concept-approach was used by DiVesta (30) in studying the adjustment of adolescents, especially their delinquent behavior. His definitions have been defined elsewhere. His hypothesis was that personal values exist in an order which may be ranked from a high positive value, through a neutral area, to a high negative value. He felt that the negative values play a very important role in a personal scheme of values.

Interviews and biographical case histories were used to provide concepts on which values, process concepts and attitude tests were constructed. Woodruff's Study of Choices was adapted for this use. These instruments were found useful to distinguish behavioral classifications and to provide a reliable method of obtaining value patterns, process concepts and attitudes toward the process concepts.

Limitations of the test are that it is limited to the measurement of nine values which may be subdivided into eighteen values. The classification failed to indicate all the difficulties in maladjustment. More general type concepts were considered to make the test more applicable for theoretical and practical studies. It was felt that further studies are needed to determine: (a) when certain values emerge; (b) the bases of generalizations which become process and value concepts; (c) when values become rather constant; and (d) how concepts as goals and processes can be changed.

Kohlmann's (60) work in the area of home economics education was particularly helpful in this study. Her thesis contained an extensive review of literature from all areas of study concerned with values. "My Portrait as a Homemaker" was the name of the forced-choice instrument she developed for measuring the eight values of homemakers which may be found in Table 1. Kluckhohn's definition of values was the operational one accepted for her study.

The following assumptions were considered basic to her study:

1. Value systems are not innate or fixed, but are acquired through a process of learning.
2. Values motivate the individual according to the degree they contribute to his well being.
3. Education in home economics involves modification of values and value patterns.
4. Values included in the study are directly related to the objectives of home economics education.
5. An educator, who knows the value system of the adults within his educational group, can do more effective program planning.
6. There is a set of values universal enough to be applicable to life in general and which can be incorporated in an instrument.
7. The way an individual responds to an item in a values instrument will be affected by the social acceptability of the idea incorporated in the item (60, p. 104).

Kohlmann found her study limited by two factors. One factor was the number of values that could be included in an instrument and yet maintain a practical length for use with homemakers. For that reason she selected values assumed to be important by homemakers. The second factor was the nature of the population used in the study.

Kohlmann first attempted to develop an instrument patterned after one developed by Selby, but she observed that homemakers had difficulty in making selections between eight and nine choices. Multiple choice, it was concluded, would lower the reliability of the results obtained by a new instrument.

Three judges sorted descriptive items believed to represent one of the named values and agreed upon 275 items. An effort was made to control social acceptability. Students in summer school were asked to check the descriptive item in the way they thought a homemaker would like to be described by each item. They were asked to check if they like strongly, or like mildly, be indifferent, or dislike strongly to be described in that way.

In developing the instrument, "My Portrait as a Homemaker," Kohlmann placed only two items in a set utilizing the forced choice technique. She had noted that homemakers in Selby's study had had difficulty in discriminating among numerous choices.

The instrument was pretested with students. Some students whose values were fairly well known by their instructors were subjects among those pretesting the instrument. Judgments of the instructors and test results were in agreement. Also, responses of some students with a fair understanding of their own personality showed a high relationship with the ranking of their own values.

Pretesting the instrument indicated that it would be necessary to have homemakers project what they would do if given the opportunity even if it did not exist at that time. This was particularly the case regarding questions involving children when there were none.

The values test instrument was administered to three groups of homemakers. There was a total of 146 homemakers among the one town and two rural groups. A door to door canvas in various sections of the town group was made in order to have different socio-economic groups represented. Copies of the instrument were left with homemakers who agreed to participate. The instrument was picked up at a later time.

Health and family life appeared to be highest in the value schemes of all three groups. The results as reported by Kohlmann (in tabular form) are now presented here in graphical form in Figures 1 and 2.

Family life appeared to be higher in the scheme of values of the younger age groups. Friendship appeared to be higher for women in the 50 years and over groups. Homemakers had been given an opportunity to rank their own values in order of importance, Kohlmann does not recommend this method since there was little or no relationship between the homemaker's ranking of her values and the values revealed by the instrument. She suggested, however, that extreme-end ranking would be more likely to correlate.

For statistical analysis, the Spearman-Brown Prophecy Formula was used to obtain reliability coefficients. The "split-half" method was used as a measure of internal consistency in testing the reliability of the instrument.

The homemakers had remained anonymous so only the split-half method of analysis was possible but was unsatisfactory since the odd and even number had not been paired an equal number of times with other values. Based on empirical evidence, all the items except friendship were found to be consistent to a fair degree. Without better statistical analysis available to her, she recommended that the test-retest method of measuring reliability be used. She recommended that the instrument be administered twice to the same group. She found the instrument to have potential for measuring values of homemakers and that it was well received by them. Additionally, she recommended that it be used as a tool for educators to better understand adults with whom they may be working and as a basis for

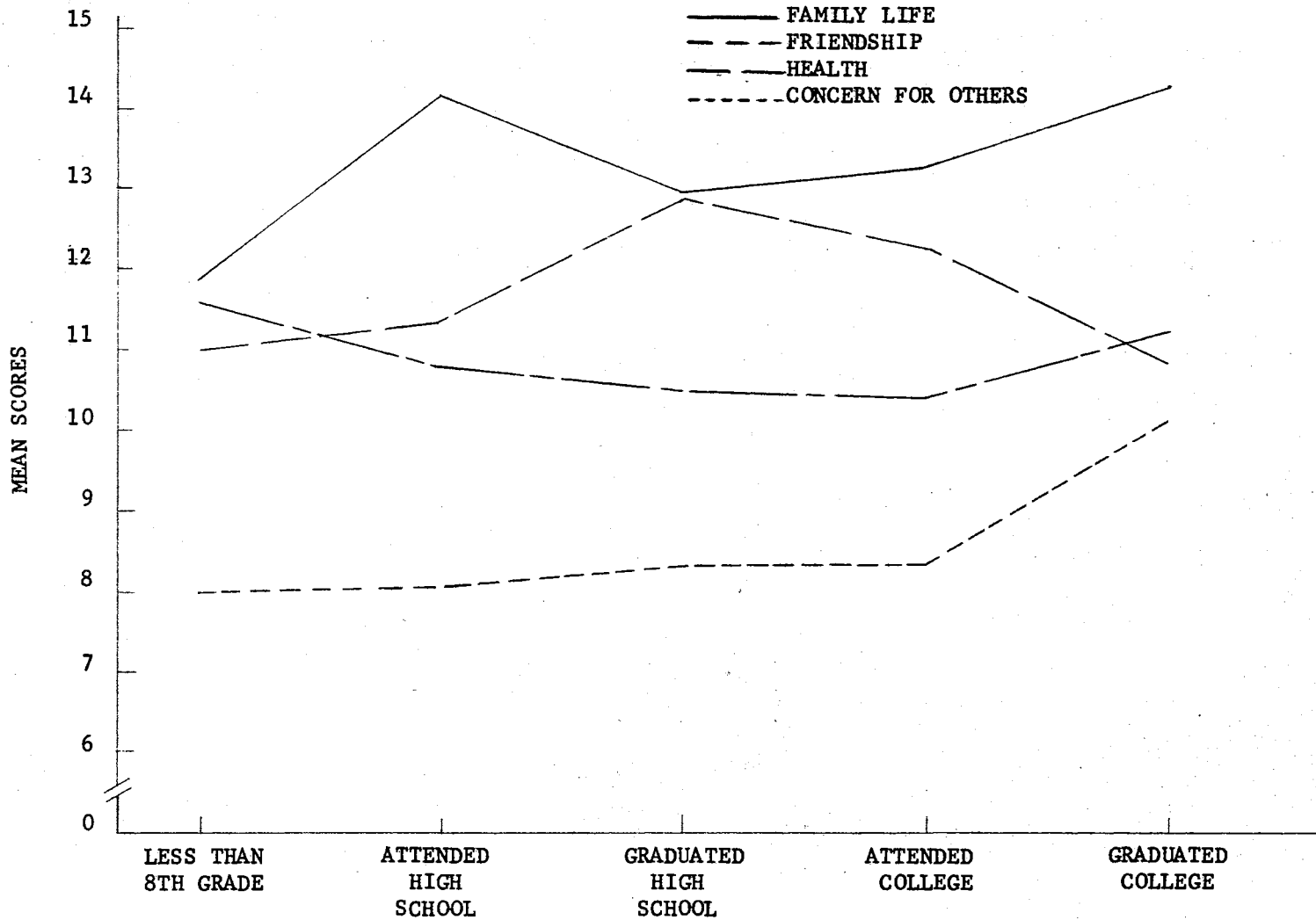


Fig. 1. Graphical presentations of hierarchy of values of homemakers with varying levels of education. Adapted from tabular form presented by Kohlmann (60).

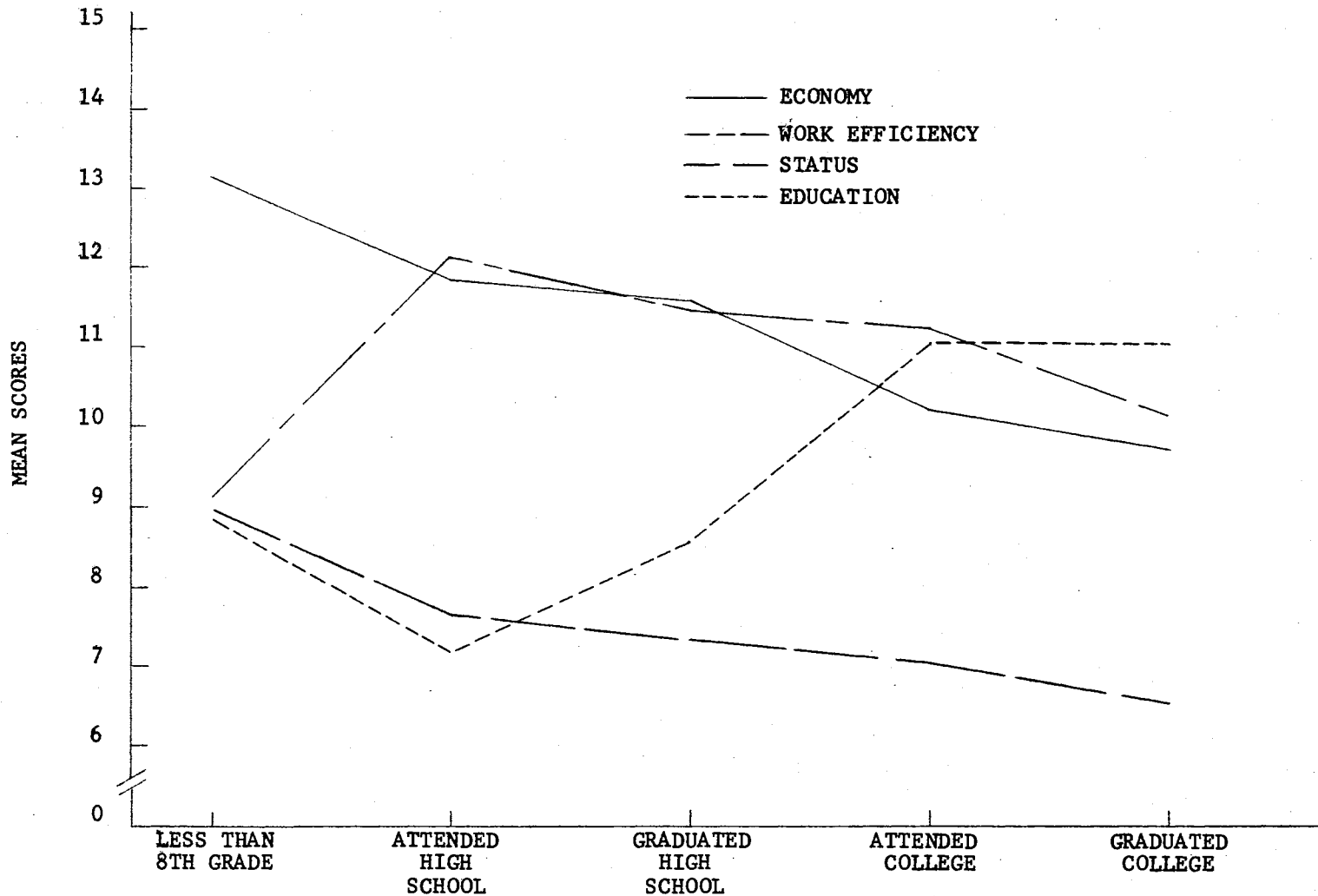


Fig. 2. Graphical presentation of the hierarchy of values held by homemakers with varying levels of education. Adapted from tabular form presented by Kohlmann (60).

determining a meaningful type program for them (60).

Phelan (94) made use of the Q-technique in her study of the relationship of values to action in family financial planning. Ninety-three couples participated. Both the husband and wife were interviewed simultaneously with the use of a card sorting system. Each person being interviewed sorted the cards out into descriptive stacks which were labeled "me most of the time," "me half of the time," or "me not at all." This writer has adapted this card sort for use in the present interview.

Using the values which may be found in Table 1, Phelan determined their importance to wives and husbands. The difference among families with varying characteristics, and the satisfaction of wives and husbands with the expression of values in their financial plan were hypothesized and supported.

Ridley (100) used a questionnaire to collect data for developing her study which utilized paired comparisons and open end response methods. Five values (aesthetics, convenience, economy, health and family relations) were used in relation to food. The study was concerned with the integrational differences existing in the value-attitudes related to food among the matrilineal members of selected families. She found that value-attitudes are transmitted from generation to generation as the three generations ranked family relations first, health second, and convenience third. The grandmothers preferred economy over aesthetics but mothers and daughters placed aesthetics over economy. It appeared, however, that values tend to remain constant through the years with only some slight modifications.

Engebretson (36) developed the operational definition selected

in this study. She explored the values of groups of wives. A projective story-completion instrument was utilized to collect data. A new constructed typology as a conceptual system was used to identify and classify values. Trial incomplete story completions and interview materials relevant to theory furnished data for development of the typology, based on theories of Becker and Diesing. Becker's theory was that man's striving for his supreme end are classifiable into four broad organizing principles governing people's lives. They are the following: security, response, recognition, and new experience. Diesing's theory was very similar. With this background, Engebretson classified four different types related to 48 value positions of the typology. The traditional type was constructed around productivity and security; the social type was built around shared experience and response; the autonomous type was structured around economic concerns, recognition and achievement; and the change-prone type around play and new experience. The typology was developed into ten specific themes with two general ones which were based on abstractions and implicit categorizations. The ten themes represented classification of subject matter response content in reply to the incomplete stories which was the response found in the incomplete stories used. Conceptions of the desirable were the focal points. The specific themes are said to be comparable to lists of values in other studies.

Sixty-three people completed a story completion which was then coded by type on two general themes, form or response and emphasis. The story, theme and type were all analyzed to construct a value. Profiles were made for the individual and the story. Such profiles were also made for groups.

Reliability tests were made by administering the stories twice with an eight months time lapse to twelve respondents. Responses were coded independently by two coders. Validity was determined by interviewing 12 respondents in depth.

Martin's (80) study was conducted as Phase II of Engebretson's works. She had projective type stories built around a set of family situations. The stories were administered to 51 families of specific-composition. The purpose was to explore the values of the entire family with use of the same projective device that Engebretson had used in Phase I.

Using the same type of instrument as Engebretson and Martin, Schlater (108) attempted to define precisely the concept of values and to operationalize the definition in obtaining value material. Intra-family and interfamily comparisons were made among 51 families. She believed that knowledge value awareness is very important in helping families increase their managerial ability. Her findings revealed that it might be possible to make some predictions about the values influencing decisions of a family. Also it was indicated that values vary with role, age and level of education. This suggested the need for professionals to have more knowledge of the predictable influences of values.

It should be noted that, according to Schlater, the instrument was developed for middle class families. Both Engebretson and Martin recommended that it not be used with low or illiterate people.

Characteristics of Low-Income Family Life-Styles

As all middle and upper-income families are not alike, all low-income families are not alike. Low-income families are not considered to be a homogeneous group (104). There are different levels of low-income living and life styles which need recognition (104). According to Jeffers, low-income was the only thing she found that they had in common (52).

Having an inadequate or low income tends to be a more permanent situation among many families; it is only temporary for a limited number of families. However, for home economists to be of assistance to low-income families, it is well to try to identify some characteristics and conditions which relate to low-income families as a group.

In order to better know how to help people, it is wise for a researcher to try to learn as much as possible about them. He then needs to try to formulate his opinion of how they need to be helped and then ask them how they feel they need to be helped. This has been an approach used by the anthropologist, Margaret Read. Through previous experience, the writer has found that an approach which incorporates opinions from both sources usually provides a basis for a better and more acceptable program to a target population. Only some of the characteristics as seen by researchers are presented here.

Definition of Low-Income Families

Kopel has noted that low-income, poor, and poverty are terms used interchangeably (63). The terms appear to be used in a relative sense in the identification of individuals or groups having an income well below the mass of society (126). The poor have further been

defined as persons maintaining a socially unacceptable or indecent standard of living (63 and 126). Kopel defined poverty as "lack of access to respected positions in society and lack of power to do anything about it" (63, p. 7). Her extensive research has indicated that there is no way of measuring poverty or defining it exactly (63).

In the 1964 report to the President by the Council on Economic Advisers, it was suggested that poverty be defined as an income of less than \$3,000 per year before taxes for a family and less than \$1,500 for an unrelated individual. At that time it was recognized that the definition would have to be modified since \$3,000 would not meet family needs in equal degrees. The Social Security Board then undertook the refinement of the definition with the development of two indexes. They took into consideration family needs based on size and composition and indicated the levels of income at which needs could be met in equal degrees or adequacy (138).

In the 1965 Nationwide Survey, a low-income family was assumed to be a household receiving in 1964 a money income of less than \$3,000 after taxes (34). In 1968, the Social Security Administration defined poverty, taking into account the family size, composition and place of residence. The poverty threshold for a nonfarm family of four was \$3,553 (129). Guidelines of eligibility for enrollment in the Payne/Noble Head Start Center, as stated in Section 214 of the Economic Opportunity Act, are based on family size and income level. A nonfarm family of four with a \$3,800 income is considered eligible (89). As a basis for a comparison of the poverty level, one may see how, in 1969, the United States Department of Labor defined three different standards of urban living for a family of four in varying financial

circumstances of 39 areas. The figures were based on 1967 costs of living. The cost for the lower standard was \$5,915, the average or moderate cost was \$9,076 and the higher budget was \$13,050 (131).

In defining poverty, Orshansky has compared the subjective value judgment of poverty with beauty which is said to lie in the eye of the beholder (86). Poverty is very difficult to define, but in measurement of poverty, it is well to consider family needs based on such factors as: family size, family composition, location of the family, age of family numbers, their state of health, the cost of living index in that geographic area, availability of employment opportunity, level of training and experience (63).

United States Poverty

The magnitude of poverty is considered to be subjective (126). The incidence of poverty is dependent upon the definition of poverty. The incidence of poverty has been defined as "the number of poor households divided by all households within the specific category" (126 p. 3). In 1959, the incidence of national poverty was 24 per cent and was reduced to 18 per cent by 1966. The number of whites in poverty outnumbered the nonwhites (mostly blacks) in poverty three to one while the whites outnumbered the nonwhites in population at the rate of ten to one (126). On this basis, the incidence of poverty among nonwhites is considerably greater.

In 1967, the incidence of poverty was twice as high among city dwellers as among those in the suburbs. It was three times greater for negroes in the suburban area. Approximately two-thirds of all persons resided in metropolitan areas but only 51 per cent of those who are considered to be poor lived there. Forty-nine per cent lived

outside metropolitan areas. Of those 42 per cent were nonfarm residents and seven per cent were farm residents (130). The greatest incidence of poverty was found to be in the South, in rural areas. This geographical area of the South is bordered on the west by eastern Oklahoma and Texas, the Ohio River and Maryland on the north, the Atlantic Ocean on the east and the Gulf of Mexico is the southern border. Fifty-eight per cent of the poor rural nonfarm families and 53 per cent of the poor rural farm families lived in the South in 1959 (126).

In 1968, about 10 per cent of the families living in the United States had incomes of \$3,000 before taxes (132). In 1968, there were 25.4 million persons, representing 13 per cent of the population, in the poverty level (129). Roughly three million families of four have been reported to be existing on incomes of \$1,460 (18).

In the state of Oklahoma, 30 per cent of the people had incomes below \$3,000 according to the 1960 census. There were 31.5 per cent of the people in Payne County having incomes below \$3,000, and 28.6 per cent of the residents of Stillwater at this level (127). It has also been reported that about one-fifth or 18 per cent of the United States population are living in poverty when cash income is taken into account with the family size and ages of the family members on a sliding scale. This poverty scale includes some 34 million people of 12 million households. In those households are six million children under six years of age, eight million who are 6 through 15 and more than five million people in the 65 years and older group of whom half live alone (114). One child in three is being brought up in conditions of family poverty with characteristics of the have-nots (84).

The aggregate poverty gap is considered to be the defining of

income in relation to the needs of the total group of poor people (86). Calculations of the income poverty gap in 1967 indicated that about ten billion dollars would raise all persons in the United States above the poverty lines (86 and 130). In 1968, the figure was reported to be 11 billion dollars (126). It has also been suggested that further study would be helpful to learn for how many the temporary state of poverty is temporary since some are students and etcetra (126).

In 1966, it was calculated that one in every four households would have been poorer instead of one in every five households had there been no income maintenance programs. Only two-thirds of all households which would have been poor without public payments received any help. Five out of six who did receive public assistance remained poor after receiving it. Public welfare programs do lessen the load of poverty but there will have to be extensions of existing ones or additional new ones to aid those who are now in poverty and those who are not receiving assistance (48). Many of those to whom programs of public assistance were available did not accept the programs because they did not understand them (69).

A Profile of the Poor

Although the greatest number of the poor are white, live in a nonfarm area, have a male head under the age of 65 and live outside of the South, a look at the greatest incidence of the poor conveys another picture. The greatest incidence of the poor is found in the southern rural areas among negroes having a household head over 65 years of age or a female head. Only a small proportion of poor families are found with an able-bodied man under 65 who is unemployed or is employed sporadically. More poor families are headed by females

and about half of all families headed by negro women were found to have incomes below the poverty level (130). In 1969, the average family size had dropped to 3.9 persons (128). In 1959, an average of 20.6 per cent of the poor were headed by persons of 65 years of age or older, while in 1967 this percentage had increased to 24.3 (130). For the most part, poverty is characterized by the following: (a) distintegration of the family; (b) old age; (c) lack of a satisfactory income even though the male head is a full time worker. Tweeten has indicated that negroes and migrant workers are actually better off in the cities than on the farms (126).

A substandard level income creates corresponding buying power for needed foods. There are usually inadequate facilities for food storage, preparation and service. There is inadequate knowledge and skill in the area of food and nutrition. It is difficult to obtain community participation among the families and there is usually distrust in the motives of those desiring to help them (136 and 140). The poor are often in deep depression with a feeling that no one cares about them. They are considered to be multiproblem families requiring specific types of help for conditions such as ill health, retardation, illegitimacy, crime and delinquency (140).

Many of the poor have been found to be straddling poverty and affluence. They know both sides and feel bitter about not being able to share more of the better things (52).

Income level is related to educational level and should be interdependent (28). Most of those in poverty have limited education. Low reading levels and illiteracy is common (140). Education is a basic need common to all the poor (93).

In some situations, being poor means having garbage that has not been collected, and toilets that cannot be flushed. Sometimes it means having inadequate heating, light and many people in too few rooms who are giving rise to cross infections.

Some Needs Expressed by the Poor

The poor are voicing a desire for social change concerning the inadequacies of the welfare budget, food assistance programs and hidden costs of public housing. They are resenting the invasion of privacy, the rules and regulations and problems of maintenance and eligibility for public housing; they want to be able to find work; and they are wanting to try to buy their own house. The poor resent implied ignorance. A homemaker who had been doing her best to stretch her money over the years didn't feel she needed others to tell her how to do it, what she should get or how to spend her money. This is a rather common attitudes now which differs from the previous accomodating one. The poor are protesting and wanting confrontation. (This was demonstrated during the White House Conference.) They are demanding some action in the decision making process (52). One woman essentially expressed the views of many of the poor when she said that she was tired of feeling tired of the incompatibility of hunger and homemaking and the thanklessness given her in trying to do all she could to "get by" and make ends meet (52). Most of the low-income homemakers participating in one expanded Food and Nutrition Education Program were looking forward to receiving help in areas other than in nutrition. Their selected areas of interest most often mentioned were family problems, money and resource management, assistance with a specific crisis, housekeeping practices, and parental practices with children (134).

Outlook on Life by the Poor

The result of life situations surrounding the poor have developed some unobvious conditions. Their social and cultural opportunities are restricted since they do not have associations beyond the border of their kin and neighborhood group. Being unskilled, uneducated, and very dispensable in a job, they feel helpless and without any personal bargaining power in employment. Withdrawal and isolation are the result of a feeling of deprivation and failure. All of those qualities create in the poor a sense of insecurity. The knowledge that one may be easily replaced on a job and the fear of having a loss of income, coupled with such fears as sickness, injury, loss of work, and legal problems, create an overwhelming situation. The "red tape" involved in forms for public assistance is also overpowering. This causes a great sense of insecurity (50). Four life themes peculiar to the poor are fatalism, orientation to the present, authoritarianism and concreteness (50).

Goals and Values of the Poor

It has been reported that the poor seek essentially the same goals and hold the same values as other Americans. Generally speaking, according to Bell, the poor do place value on both occupational and educational achievement, contrary to previously held impressions. They seek to improve their physical environment and value the same type of material comforts and luxuries as other Americans. With some modification, they hold the same basic properties of social conduct. Even though they may not be able to attain advanced education for themselves, they do value it (6). Interest in improving status has greater variance (43). It has been reported that up to 65 per cent

of the parents will say they want a college education for their children (6). The value placed upon education is very important since education helps to provide an opportunity to break the poverty cycle. Education provides productive skills which affect income and attitudes of future generations (126 and 103). Hardships of poverty appear to cause health to be lower in a hierarchy of values (50). This should be of special significance to those concerned with the nutrition of the poor since health and nutrition are allied and must be considered together.

Pascual has pointed out the incompatibility of effecting dietary change when health and nutrition do not occupy a high position in a value system (91).

Material comforts and security are both valued highly, but "getting by" is valued more than "getting ahead" (17). A more noticeable difference may be seen in the accepted set of moral and ethical values of many of the poor, according to Ireland. Stable marriages are valued highly but other forms of sex partnership are not rejected. A legal union, common-law marriage and a transient arrangement are valued in that descending order with the greatest value being placed upon the legal union. Although legitimate families are considered the ideal, the parent who provides for the children out of wedlock is not devalued (50). In one seven-state sample of homemakers in rural households in low-income areas of the South, 813 of 1440 or 42 per cent of the respondents indicated that "relations with family and kin" were their source of greatest satisfaction (85).

Education

There is conclusive evidence that educational levels are lower in poverty areas than in other areas of the United States (126). Quality

of education has often been found to be below national standards, dropout rates are higher, and fewer attend college (126, 50). In the southern rural areas in 1960, four years of high school had been completed by 23.3 per cent of the white and 5.7 per cent of the nonwhite adults. At that time, dropout rates for 19 year olds were over 50 per cent (126). In 1969, there were 18.1 per cent white and 42.1 per cent of the negro 20-21 year age groups who had completed less than four years of high school (56).

Sanjur and Scoma reported that low-income mothers of Southern origin who had moved after 20 years of age to the urban North were found less likely to be reading newspapers than those of Northern origin who were still residing there. The Northern-born mothers were found to have a higher score in educational level, employment status and participation in public health clinics (104). This further emphasizes the deprivation of the poor in the South.

Economic factors thought to have a bearing on the lower educational attainment level are: (a) the economic rate of return on expenditures for education, (b) opportunity costs are higher in the rural poverty areas than in economically advanced areas, (c) a local tax base and too low to support good schools in poverty areas (126).

Other contributing factors found to be affecting the quality and quantity of education in low-income areas are: (a) the inadequacy of local schools in poor areas to equip the student for higher education or for competing for a nonfarm job; (b) inadequate information presented regarding job opportunities outside of the immediate environment which contributes to drifting along until the student drops out or it is too late for him to have the training needed for better job

opportunities; (c) the financial gap between job aspirations and training required for the job; (d) the high "social" cost of mobility which is thought to be the solution to rural poverty; (f) value placed upon education by the parents and peers; and (g) the concentration of educationally deprived children in some schools which serves to reinforce the inadequacies of the students (126).

Ireland has noted the following additional factors among the poor which contribute to a lack of education: (a) a lack of student achievement, motivation and verbalized language skill; (b) the lack of space and needed tools for home study in overcrowded living conditions; (c) and poorly trained parents being unable to assist or guide their children in educational endeavors (56).

Accepted Family Roles of the Poor

As in some Asian countries, the wife has much influence in family decisions. Among the poor in the United States it is also the man's responsibility to earn the money and it is the wife's duty to spend it wisely. The man has a passive role, has titular authority and demands the freedom to come and go as he chooses. The man feels dominant and the woman downtrodden. The woman is viewed by her husband as the housekeeper-mother. The mother-child relationship is considered by some to compensate for the dullness of life, lack of attention by and communication with the husband. The mother-child relationship is said to be the strongest and most enduring family tie found in the lower class. The passive role of the father appears to strengthen the dependence of the children on their mother. Sometimes it is economically advantageous to be a single parent family. However, sporadic presence or absence of a father appears to cause a

social and emotional detrimental effect on the children.

Neatness, cleanliness, obedience and being respectful are qualities of great concern by parents for their children. Parents are also concerned about the health of their children but some lack the tools to activate their concern (50).

Health Practices of the Poor

Having little money available for health care, lacking in factual health information and facilities available to them, and a fear of the unknown, it is not surprising that Ireland has reported that little attention is given to preventive medicine. Among the poor, care in the United States is not usually sought until in a late stage of illness and as a last resort after medication by self, someone in the home, a friend or neighbor has failed. Among the poorly educated, a person is often not considered to be sick until he is unable to carry on his daily duties (50). A recent study involving low-income mothers in New York, however, is encouraging. It revealed that 72 per cent of the mothers attended Public Health Clinics and saw doctors. A larger number of the mothers reported having regular checks rather than coming because of sickness. Sixty-five per cent of the 145 preschool children involved were reported to be taking vitamins, 20 per cent of them were taking tonics and 45 per cent were consuming both. Twenty-seven per cent of the persons recommending the tonics and/or vitamins were medical doctors or registered nurses, 16 per cent were given on a self-made decision, and two per cent were recommended by relatives. It may be noted that the majority of the mothers in this study had had some high school, had completed high school or its equivalency, and were above 30 years of age. Their communication

scale was found to be the following: 98 per cent watched television, 97 per cent obtained news from friends and church, 92 per cent listened to the radio, 91 per cent read the newspaper, 76 per cent read magazines and 70 per cent read books. Twenty-five per cent were reported to be employed. It was suggested that the poor are not a homogeneous group (104). The length of time the health clinics had been in existence, the efforts and methods that had been made to publicize the services available and to obtain participation of mothers were not reported.

Consumer Buying Practices of the Poor

In comparing food expenditures of low-income female headed households with cost estimates by college senior home management students, the students were found to have spent seven per cent more than the homemakers were making economical purchases of food ordinarily purchased but the minimum needs could not be met even with improved buymanship. The study concluded that the greatest potential assistance to these homemakers would be to assist them in the decision-making process which take place before the actual shopping and thereby effect a change in food choices (4).

If a homemaker can spend only \$600 a year for food for a family of four, she has two alternatives. One alternative is to drastically reduce the number of calories and still try to maintain a balanced diet. This is said to be the recipe for hunger. The other alternative is to reduce the consumption of meat, milk or fruit and include more of the cheaper forms of carbohydrates. This is according to Choate, the formula for malnutrition (18).

In the 1961 average of expenditures of families having incomes

under \$3,000 after tax, the largest single expenditure was for food. The urban family average expenditure for food was about \$1,100 or 29.9 per cent or \$6.25 per week. The rural nonfarm expenditure was about \$750 or 30.3 per cent or \$4.35 per week. The average expenditure for the farm families was about \$700 or 28.0 per cent or \$3.75 per week. The second highest expenditure was for shelter, fuel, light, refrigeration and water group. For the United States, this average was 29.8 per cent. Medical care was the third largest item of expenditure and that was at the rate of 8.9 per cent. Automobile purchase and operation followed at 7.8 per cent and 7.8 per cent of the expenditure was for clothing (138). Families in the \$7,000 or more income level had a weekly food expenditure of \$9.90 for the urban area, \$8.00 for rural nonfarm and \$5.40 for farm families (138).

For the most part, low-income groups spend their income for necessities first and for luxuries last. The larger portion of it must be spent on the basic needs of life such as food and shelter. The purchase of durables such as automobiles, equipment and furniture, however, is found to be a weak spot in purchasing behavior for they overspend for their income level. Some of this, it has been suggested is due to the large sizes of young families in rather newly formed households. There are a large number of working wives feeling the need for labor saving devices (50).

Another consideration is the method of merchandising which results in higher prices (50). For example, poverty neighborhood grocery stores have been found to have poorer sanitation, charge higher prices, and having fewer quality items which cost more when they were available (16).

Ireland has also suggested that the poor do not budget their incomes nor plan their purchases. Again, a lack of education is reflected in the knowledge of money matter and the way money is considered. This does not go to say that the poor are unconcerned about money family finances.

There is only a very little limited amount of home production by the poor. However, the evidence presented pointed to the area of food growing and home repair (50). Somewhat contrary to what has been recently reported by Coltrin and Bradfield, Ireland has indicated that low-income shoppers do not try to get the best quality of goods for the lowest price for the following reasons: the lack of price consciousness and deliberation in shopping, they are less informed on product characteristics, they are more apt to buy single new items rather than used ones and to buy them on credit. On the plus side of the shopping practices, she noted that special deals for durables are more often negotiated through friends and relatives, and that goods are more often bought at a special sale price by the very poor. The lack of education and the confusing complexity of merchandising goods are indicative of these qualities. Fewer of the poor have installment or mortgage debts due to their ineligibility for loans based on credit requirements (50).

A recent review by Coltrin and Bradfield on the food buying practices of urban low-income consumers has indicated that 60 per cent of one group of low-income consumers shopped at chain stores and 34 per cent shopped at independent stores (20). Delgado, et al. reported that migrant families traded at chain stores as long as money was available, but then bought on credit at farm stores when money

was scarce (29). In spite of the limited available income and small number of automobile ownership, a majority of low-income consumers shopped in large supermarket-type stores. Some of these shoppers considered the supermarket to be providing better quality foods at lower prices. Such trends suggest that the consumer is making an effort to stretch his food dollar. Level of income, ethnic background, family size and age were found to be reflected in buying patterns and needs. Low-income old white people and low-income young Negro families purchased fewer frozen vegetables and fresh fruits but larger amounts of such meat items as pork chops, chicken and spam, and more of the starchy foods than higher income families (20).

With reasonable skill in consumer buying practices and good food habits, Callaway has reported that it is possible to obtain an adequate diet with the use of the Economy Food Plan of the United States Department of Agriculture. The study emphasized that the Basic Four Food Groups should not be used as the only guide in planning and marketing as the groups may be used in the recommended amounts and still an inadequate diet may result (15).

The commercial processing of foods has created some problems and caused some changes in the food buying practices of the low-income mothers. Previously the homemaker could provide good food at a lesser cost to her family through her creative use of inexpensive foods, her cooking skill, and labor. Many of the formerly inexpensive cuts of meats are now used for commercial pet foods and pharmaceutical extracts. The abundance and surplus of foods at harvest times formerly provided a low price for many seasonal fruits and vegetables. Now, however, with newer methods of food processing, the consumer prices

are more stabilized at a higher price throughout the year (82).

With fewer inexpensive foods available and the lack of money available for food, it would appear that greater emphasis needs to be placed on more accurate and publicized information on the kinds and amounts of ratios of food combinations which can provide an adequate diet (57). Drs. K. W. King (58), R. W. Engel and several others working in developing countries have produced some of this information for the use of low-income mothers of preschool age children (58, 95). Dr. C. G. King has projected that sometime in the future the Recommended Dietary Allowance will have food nutrients scaled down in proportion to caloric intake and total functional activity. Hopefully, this would aid those in planning more nutritious low cost meals at a cost compatible with food, money, and facilities available to the consumer.

Some Limitations of Interpretation of Nutrition Surveys

Within the past twenty years, there have been published a number of dietary and biochemical studies in many parts of the United States for the purpose of assessing nutritional status. Only a negligible number of studies have included subjects from the very high or very low socio-economic levels (28). There is a need for improvement in methods of evaluation and presentation of published data. For such studies to be of use in discovering and defining nutritional problems of a population as well as for planning corrective programs and for evaluation of their effectiveness, they need to be more carefully designed, executed and reported (28).

The limitations of the interpretation of nutrition survey data must be known before it is used. This has been discussed by Krehl and Hodges (64). Most of the data obtained in Interdepartmental

Committee on Nutrition for National Defense Surveys have been on average family intakes in groups of families with very little data on an individual basis. Even though biochemical and clinical observations are made for some individuals, the dietary data presented is for groups. This eliminates the possibility of correlating the actual nutritional data with biochemical and clinical assessment of an individual (64). An additional limitation in the use of dietary studies is that the intake of an individual is masked in a dietary survey of population groups (125). It has been suggested that a composite of epidemiologic and biochemical methods be utilized in order to identify signs of malnutrition, determine the nutritional status of a population and make a comparison of the recommended nutrient level (19). Manpower, time and expense, however place limitations on such surveys.

Some methods reported in the literature as having been used for obtaining dietary information include questionnaires, dietary histories, 24 hour dietary recalls, a diet record covering 24 hours to more than a year, diets weighed by trained personnel, balance studies of food consumed and leftover, diets weighed and recorded by the subject, and an inventory method. Watson has given a comprehensive review of various methods used and some of their limitations (135).

In some dietary studies, the nutritive content of foods is compared with the Recommended Dietary Allowance of the Food and Nutrition Board, National Research Council of the National Academy of Sciences. A diet was rated "good" if it contained two-thirds of the recommended amounts of the following seven nutrients: protein, calcium, iron, vitamin A value, thiamine, riboflavin, and ascorbic acid. A rating of "poor" was given if the diet provided less than two-thirds of the

recommended amount of one or more of said nutrients (33). The Recommended Dietary Allowances are value judgements which have been planned to meet the needs of essentially all healthy individuals of the United States. They have been designed to even cover the requirements of most of those who have the highest of nutrient requirements. Except for calories and ascorbic acid, the amounts recommended are at least twice the amounts needed to prevent deficiency symptoms. The ascorbic acid recommended level is more than twice that which is required (68).

Review of Selected Nutrition Surveys

In order to be more knowledgeable of the nutritional status of low income families, it is well to review the literature of this area since poor nutrition has been found to be one of the more likely consequences of poverty (74). Nutrition surveys need to be reviewed even if, according to Mann, there are more people in the United States who are malnourished due to nutritional ignorance than because of inadequate incomes (78).

In 1965, the Nationwide Household Food Consumption Survey was the most extensive one attempted by the United States Department of Agriculture (70). It is the only survey that has studied comprehensively the relationship between income level and food purchases (28). Food intakes of approximately 14,500 men, women and children were collected but no information was obtained on nutritional status (40). Because the food consumption survey was based on food purchases and was not designed to determine the presence of malnutrition and hunger, there is no way to relate these findings directly to malnutrition and health of the people (68).

Findings of the 1965-66 Nationwide Food Consumption Survey

indicated that more diets were rated "poor" in 1965 due to a decreased use of milk, fruits and vegetables (1). Fifty per cent of the households were rated "good" and about 21 per cent had "poor" diets (68). The nutrients which were most often found to be below the recommended amounts in the diets of children and adults of all regions were vitamin A, ascorbic acid, calcium and iron (54).

Nine per cent of the families with incomes of \$10,000 or more had "poor" diets. Thirty-six per cent of households with incomes of under \$3,000 had "poor" diets and thirty-seven per cent of the households had "good" diets (33, 121). Some of those may have acutally had "good" or "fair" diets rated "poor" because of the nutritional value of additional foods provided by free food stamps or commodity distribution (70). A household diet rated "poor" in this survey should not be considered synonymous with malnutrition since the Recommended Dietary Allowances are very generous in this country (68).

The 1965 Nationwide Survey did indicate that: (a) the percentage of urban and rural households having "good" and "poor" diets was similar at each income level even at incomes below \$3,000; (b) rural food patterns have become more like those of the urban ones; (c) there was an increased expenditure for food away from home and convenience foods; (d) there was an increased consumption of meat and decrease of milk and cereal; and (e) there was a decrease in the number of "good" diets (69).

Based on findings of the Nationwide Food Consumption Survey in 1965, low-income families consumed more foods in the bread-cereal food group than others with higher incomes. All the income levels reported had a lesser difference in consumption of the meat group than

milk, vegetable-fruit groups which had greater variance. When more money was available, more was spent for meat, fish, and poultry. Irrespective of the income level, the dollar was divided about the same way for the food groups. Twenty cents of the food dollar was spent on the fruit and vegetable group, 37 to 38 cents on the meat group, 13 to 12 cents on the milk, bread and cereal group, and 17 and 18 cents for other foods (33). The money value of food consumed per person in 1955 and 1965 was similar (1).

The low-income families were found to have received a greater nutritional return for their food dollar because of the larger amounts of less expensive foods used. Such foods were nonfat dry milk and enriched cereals which are high in nutrient content in comparison to cost (33).

A comprehensive review of 1950-1968 publications of studies of United States vitamin and mineral nutrition was undertaken by Davies, et al. They confirmed that dietary habits of the American public have worsened since 1960. They also confirmed that only a limited number of dietary studies of low-income groups have been undertaken. Due to the small amount of data on infants, no sweeping generalizations could be made. However, there is evidence to support the view that appreciable numbers of infants are malnourished and that some infants from high socio-economic groups may be receiving less adequate diets than those of low-income groups (28).

Delgado, et al., made a household study of 350 negro migrant workers in Florida. Consumption of vitamins C and A, riboflavin and calcium were found to be below half the Recommended Dietary Allowance. Only six per cent of the population fell below half the Recommended

Dietary Allowance. The amount of animal protein consumed by larger families was inadequate. Cases of marasmus, kwashiorkor, obesity, emaciation, nutritional anemia, malnutrition and poor dental health were found among the subjects. Based on the availability of certain low cost foods and the amount of money for food, a well rounded integrated educational program has been recommended (29).

Thiele has also studied negro migrant workers in New York. The biochemical indices of nutrition revealed a similarity to other studies (123). In a study of culturally deprived children in Baltimore, Stine observed that mean height and weight were actually closer to values for children of developing countries than the average height for children in the United States standard (118). These are examples of some of the "pockets" of poverty and hunger. These must be found in order to fulfill recommendations of the White House Conference on Food and Nutrition which expressed the view that all Americans are entitled to a fully nutritious diet (45).

Findings of Owens and Kram concurred with some of those of the 1965 food consumption survey. Owens and Kram found calcium, ascorbic acid and riboflavin to be the most limiting factors in the diet of 558 preschool age children in Mississippi. Their findings were supported by biochemical assays and growth achievement. The children living in poverty were found to be smaller than average and more vulnerable than those of more affluent families (88). In general, it was found that the greater the family income the more adequate the intake of calories, calcium, protein and vitamin C. The children from the lowest income groups were found to have more low values than children of the highest income group, but the fact that some

children of families with the highest income did have nutritional deficiencies is indicative of the fact that nutritional adequacy is related to dietary habits and food preparation as well as income (87).

A recent Oklahoma School Lunch Division survey of food habits has revealed that of 6,184 children, seven per cent of the children had less than a third of the calcium required daily; nine and a half per cent had less than a third of the vitamin A needed by them. The B vitamins were consumed in adequate amounts for 85 per cent of the children while only 75 per cent had enough iron. Five and six years old children had the least adequate diets. A higher percentage of inadequate diets were found among low-income families, although many children of middle and upper income families had inadequate diets.(109).

The National Nutrition Survey in 1968-69 was the first comprehensive study in the United States for the purpose of determining the nutritional status of low-income populations of ten states. Random selections of population to be included in the survey were based on the largest known percentage of families living in poverty. The majority of those studied had incomes below \$3,000.

The survey included information on the (a) data of general household socioeconomic, (b) dietary intake, (c) physical examinations, and (d) laboratory analysis. Only the preliminary findings have been released. Approximately 60 per cent of the families had incomes of less than \$3,000 per year (106). Clinical examinations and biochemical analysis revealed gross malnutrition, retarded growth, and lesions related to malnutrition. Five per cent of the population had enlarged thyroids. Eight cases of Bitots spots were found as well as two cases of marasmus (107). One-third of the preschool age children and 15 per

cent of the adults were found to have low hemoglobin levels which were indicative of iron deficiency or anemia (98). Five to twenty per cent had serum vitamin A and C below accepted standards. Thiamine and riboflavin levels were also below normal. Eighty-five to ninety per cent of the subjects were in need of dental care. Children in the group from birth to six years were found to be in the lower 16th percentile of the Iowa Growth Chart for mean age, height and weight (107). Serum protein levels were less than adequate in sixteen and three-tenths of those surveyed while seventeen and one-tenth per cent of the population had low serum albumen levels. Those were lower than for many foreign populations (105).

Consequences of Protein-Calorie Malnutrition

It is surprising that until rather recently there had been few investigations into the effect of protein-calorie deficiency on the nervous system (127). Reports from South America, India, the Balkan Peninsula, China, Southeast Asia (including the Philippines) and Central America by 1952 indicated the wide spread occurrence of protein-calorie malnutrition. By 1955 this had become recognized as an international health problem (25). The results of a seven year study by Stoch and Smythe in Cape Town, South Africa was reported in 1963. They studied a group of children aged three to ten months through the following seven years of life to assess the effect of severe malnutrition on brain growth and intellectual development (119). At the end of eleven years they concluded that when severe malnutrition occurs in the first two years of life there is impressive evidence that permanent reduction in brain size and restricted intellectual development occurs. One of the indices used for brain growth and development was the

growth of the head circumference (120). Frisch is now questioning whether head circumference is a valid standard of measurement even though about 96 per cent of the adult value is reported to be attained by ten years of age. Based on 1962 publications cited, Frisch feels there is inadequate information regarding normal brain growth spurts and whether head circumference is due solely to thickening of the skull and its coverings (42).

As early as 1966, Cravioto of Mexico had written that psychological disorders unquestionably ranked foremost in the clinical picture of malnutrition (26). That same year Cravioto, De Licardie, and Birch could not decide whether their studies indicated that severe malnutrition caused short stature and deficient neurointegrative capacity or whether the poor "social conditions representing an impoverished environment lead per se to prior intersensory functioning (where malnutrition has affected the central nervous system)." They did not feel there was enough evidence to reject either hypothesis (25). In 1967 Cravioto, Gaona and Birch indicated that malnutrition in the early years may be the cause of neuro integrative inadequacies resulting in the lack of skills in language acquisition, reading readiness, and symbol manipulation. They felt it could be the beginning for ultimate school failure and subnormal adaptive functioning (24). Liang and others in Indonesia reported that on the basis of the nutritional status of the pre-school years of Indonesian children, the degree of both physical and mental development could be predicted with a high degree of accuracy (71).

In 1968 Cravioto and De Licarde wrote that children risked school failure when their height was a reflection of earlier and continued

malnutrition due to the inability to master elementary school subjects. They felt this may be the beginning of a developmental path which is characterized by neurointegrative inadequacy, school failure, and the subnormal adaptive functioning which followed (23).

At the Conference on Malnutrition, Learning and Behavior in 1967 it was asked if there is a critical period in the early development process when nutritional deprivation limits ultimate intellectual capacity. At that time it was felt that malnutrition affects mental growth and development beginning a few months after birth and extending through the first two or three years of life (133). This period is currently under question since it has been reported that the most rapid growth period for the brain takes place from three months prior to birth through the first six months after birth (67). It is felt by many that 90 per cent of the adult mass has been formed within the first three years after birth. As Leverton has pointed out, the growth of the brain as well as other structures are dependent upon the energy and nutrients available, as well as on the "internal environment" which will build these tissues. She has stated that any shortages in supplies or interruptions may cause retarded growth. The myelin sheath which encloses the nerve fiber is also susceptible to stress placed on it in undernutrition (67). Recent studies with human beings have indicated that deposition of myelin is reduced by malnutrition during a period of active myelination (76).

Winick, Barnes and co-workers have repeatedly pointed out that malnutrition causes a reduced number of cells in the human brain (143, 144, 145, 146, 147). In 1970 they reported that during the first year of life, under nutrition results in a smaller brain containing

a reduced number of cells. They also noted that the type of alteration appears to be dependent upon whether there is curtailment of DNA synthesis (102). These studies and human behavioral studies both give indication that the first six months of life are the most critical period so far as malnutrition is concerned. Evidence is increasingly indicating that malnutrition in infancy permanently affects the minds of children and that the time element is critical. Many investigators feel the earlier the malnutrition, the more severe and permanent are the effects. Thus far, it appears that permanent effects will not occur if the onset of malnutrition is after a certain age as the brain appears to be more resistant to the effect of malnutrition after a certain age (147). Winick has reaffirmed findings of Stoch and Smythe in noting that studies suggest that during the first six months of life, the reduced head circumference in malnourished children appears to accurately reflect the reduced number of cells present in the brain (146).

Barnes has indicated that care should be exercised in stating all the effects of malnutrition on mental development since much of the experimental work has been done with animals on which a more severe degree of malnutrition has been imposed than one finds among poverty groups here and among developing countries (5). Latham and coworkers are investigating the possible role of malnutrition in mental retardation with children in Bogota, Columbia. Previous studies there have indicated that well-nourished children scored higher on mental tests than did the poorly nourished ones. They are undertaking a longitudinal study to define the possible role of malnutrition in the retardation of mental development (66).

Cravioto and others have reported that if protein-calorie malnutrition is severe enough to require the child to be hospitalized and also to have caused retarded physical growth within the first year, there may be adverse affects on mental development. If a child is severely malnourished for four months during the early months of life, the degree of mental retardation produced may be so great that it cannot be overcome through nutritional rehabilitation. Presently, however, there is insufficient data to distinguish between the effects of early severe malnutrition and other contributing factors (22). Some factors which are thought to affect intellectual development, physiological growth and nutritional status are inclusive of ecological and genetic ones. The ecological ones are inclusive of poverty, ignorance, resulting in deprivation of intellectual stimulation for the child disease, deficient parental knowledge and education, poor child-rearing practices, poor housing and crowding (66). The lack of adequate nutrition also subjects the child to more infectious diseases. Since these factors react synergistically, it has been found difficult to determine the contribution of malnutrition on mental development (66). However, Dr. Cravioto and others have observed that a child who survives severe early malnutrition is different from normal children (22).

CHAPTER III

EXPERIMENTAL METHOD

The procedures followed in this study include: (a) a review of the literature to obtain an acceptable definition for the word value and to identify the food-related values which were believed to be most important to study; (b) the optimum number of values to investigate food-related problems of low-income families; (c) an interview was developed to enable each mother to indicate the degree to which each of six food-related value statements described her desired behavior; (d) a values test instrument was developed whereby mothers chose between 60 pairs of value statements to give an indication of the relative importance of each value; (e) the data from the interview was analyzed to establish its reliability; (f) the data of the values test instrument was analyzed to determine the hierarchal ranking of the food-related values; and (g) implications for college and university curricula and for educational emphasis to be stressed by home economists working with low-income families were indicated. It is the belief of the writer that the findings of this study could be helpful as a basis for developing education materials and techniques for home economists working with mothers in low-income families.

Selection of the Values

Following the acceptance of an operational definition of the

word value, the next problem was the selection of the values, their definition, and the number of values to be included in the study. The criteria established for the selection of values were as follows: (a) the values be food-related, (b) the values be of primary importance to mothers of preschool age children, (c) the values and definitions be compatible and consistent with the operational definition of values.

In the review of literature (Table 1, p.13) of 28 studies reported, there were 109 terms referred to as values. The latter number included some groups of the terms which were very closely related or which had different terms used for a value commonly called by another name. The following is a tabular form of the most frequently appearing values investigated in the literature:

<u>Name of Value</u>	<u>Number of Times Investigated</u>
Family Life/Centrism	15
Friendship	13
Health	13
Economy	12
Freedom	10
Aesthetics	8
Concern for Others	7
Education	7
New Experience	7
Religion	7
Recognition	7
Comfort	6
Efficiency	6
Security	5
Pleasure	5

The number of value terms investigated in any single study ranged from three to thirty-six. Three of the studies included nine value terms related to forty-eight value positions. The following is the tabular form of the number of value terms appearing in relation to the number of investigations conducted.

<u>Number of Value Terms Included in a Study</u>	<u>Number of Studies</u>
36	1
15	2
14	1
12	3
11	1
10	2
9	8
8	4
7	1
6	1
5	2
3	1

It may be seen that nine value terms were included in a study most frequently with eight values appearing next in frequency.

It was judged from experiences of other investigators that an interview or test should not require more than thirty minutes to complete. This included cognizance of the fact that since most of the mothers had jobs away from home, time was a premium. It was also thought that the mothers might lose interest if the time required to complete an interview or test should exceed thirty minutes.

Literacy of the mothers was another consideration involving the

length of the interview and values test. It was agreed that having the investigator read the statements aloud to each mother would prevent embarrassment by disclosure of any illiteracy although this would require more time. These factors meant that fewer values could be investigated or else fewer statements related to the values could be included for study. Even though the majority of investigators had selected eight or nine values for investigation, the writer elected to select six values as the optimum number to be included in this study.

The values which met the criteria for selection were found among the six most frequently considered as values for investigation. The following six values were chosen for investigation: (a) family life, (b) friendship, (c) health, (d) economy, (e) education and (f) work efficiency. With some modifications for this study, Kohlmann's definitions of these values were found to be most suitable. These definitions are given on page 7.

Collection of Descriptive Items

The following are some methods found helpful to some investigators in collecting information:

- (a) Requesting subjects to write out information relating to the specified subject (48).
- (b) Interviewing with an open-end response type question, story or picture (41, 80, 14).
- (c) Reviewing the professional and nonprofessional literature (60).
- (d) Talking with people who work closely with the subjects (60).

- (e) Reading behavioral descriptions thought to reflect values (60).
- (f) Observations of the subjects in various places of activity (60).
- (g) Suggestions from colleagues (60).
- (h) Case histories (30).

The writer felt that some of the mothers might be unable to write out adequate information in an open-end response question. Kohlmann had found that few individuals in her study had sufficient knowledge or insight to be able to rank their own values (60). In an attempt to gather relevant descriptive items, the writer reviewed professional and nonprofessional literature on subjects ranging from nutrition, descriptive items collected by other people, low-income life styles and to values. She also received assistance in talking with colleagues and people who worked closely with low-income mothers. Generalizations found in the book by Eppright, Pattison and Barbour (110) were found to be helpful. The investigator visited with mothers in other Head Start Centers and attended meetings with them. In order to establish better rapport and discussion with some of the mothers, she presented a program at a meeting with them. Some personal experiences involving eleven years of nutrition work with mothers outside of the United States were related, and this served to evoke additional discussions with the mothers. The investigator also observed mothers at the commodity distribution point. This accumulative activity was followed with an attempt to write out statements that would be associated with one of the six food-related values as they have been defined.

Selection of the Sample

The population for the study was limited to mothers of children enrolled in the Head Start Center and Stillwater Neighborhood Nursery of Stillwater, Oklahoma. The researcher visited the personnel in charge of these programs and explained the purpose, significance and anticipated general procedure of the proposed study in order to solicit their aid in providing a list with names of mothers whose children were enrolled. The mothers whose names were given by the Head Start and Neighborhood Nursery personnel were visited or telephoned by the researcher to explain to the mothers the purpose and expected outcomes of the study. As a result of the response of the mothers visited, a total of 42 mothers were included in the study.

Development of the Interview

The six values selected for the study were (a) family life, (b) work efficiency, (c) economy, (d) health, (e) friendship and (f) education. Twelve to 18 food-related statements were prepared. Words selected for use in the statements were chosen for a sixth grade reading level. This was a level reported by the Federal Extension Service as being used in publications for disadvantaged families (11). Effort was made to have the descriptive items (a) related to only one of the values included in the study, (b) worded to be compatible with the understanding of the mother, (c) expressed in terms of the behavior of the mother, (d) worded as concisely as possible, (e) nonbiased, and (f) written in the present tense.

Each statement was typed on a 1½ x 5 inch sheet. A panel of six experts in the field of nutrition who had had extensive experience in

working with low-income mothers and some knowledge of the values were selected. Each was given the names of the values, their definitions, statements, and directions. Envelopes were labeled for each of the values and one was labeled "no food-related value." The experts were requested to read the value-related statements and place each of them in one of the envelopes. The results of value statement selections of the six experts were then tabulated. There was insufficient agreement among the panel of experts. The statements not selected by most of the experts were deleted. The experts also suggested rewording of the remaining statements and some new statements were added. The instructions the experts were asked to follow are given in Appendix A.

A different procedure was used when food and nutrition experts were asked to evaluate the statements a second time. Status was the value considered of least importance in the study so it was the one eliminated. The statements were typed on sheets of paper and the experts were requested to indicate which value each of the statements most closely characterized. A letter explaining this procedure is given in Appendix B. Definition of the term value and the six values, a list of the 86 statements, and a sheet for each of the six values for recording the statement numbers related to the specified value are also given in Appendix B. All six experts were in complete agreement on eight statements for each value except for family life. For this value, six experts were in complete agreement on seven statements and five out of the six were in agreement on the eight statement.

The final eight statements selected for each value were randomized, numbered, and used in an interview. The final eight statements selected and the key to the value statements are given in Appendix C.

Each of the 48 statements were placed on 3 x 5 cards.

Since the mothers in the pretest did not experience any significant difficulty in completing the interview questions, the same interview was used with the 42 mothers in Stillwater. The mothers indicated for each statement which of the following best described her behavior for the particular statement by selecting one of three categories and placing the cards in front of each category card. The three categories used were: (a) This is me ALL of the time; (b) This is me SOME of the time; and (c) This is me NONE of the time. It was felt that such a description of behavioral actions would convey what the subjects felt was the desirable rather than the desired. In order to give a measure of the degree of importance each mother placed on each value, the following weighting values were used: "This is me ALL of the time" was multiplied by two. "This is me SOME of the time" was multiplied by one, and "This is me NONE of the time" was multiplied by zero.

Pretesting the Interview

Before the final form of the interview was administered in Stillwater, a preliminary form was pretested in Pawnee, Oklahoma with eight mothers of low-income families. Various changes were made in some of the value statements to insure clarity and ease of understanding. All negative type statements were reworded such that an acceptance of the value statement would be indicated by a positive response by the mother. Negative type statements seemed to create confusion among the mothers as to how to respond so they were eliminated.

The purpose of the interview and directions for selecting the categories in the card-sort were given. The interview questions were

read aloud with the mother who placed the cards in the three selected categories. The researcher was present to answer any questions the mother might have.

Development of the Values Test Instrument

Each mother indicated how each value statement in the interview best described her behavior. A score was computed for each value statement on the basis of an assigned numerical value to each degree to which the value statement indicated the mother's behavior. The scores were designed as follows:

2 = This me all of the time

1 = This is me some of the time

0 = This is me none of the time

The four statements of each value which received the highest scores tabulated from the interviews were selected for use in constructing the test instrument. In the case of the value friendship statement numbers five and eight both scored 49. Since both statements received the same score, a coin was tossed to determine which statement was to be selected. Statement number eight of the value friendship was selected.

It was decided that the paired statements method of determining the hierarchal ranking of the values would be used in the test instrument. As can be seen in Table 8, Appendix D, there is a matrix indicating the total of 240 possible pairs of value statements. Since it was felt that the test instrument should not include more than 60 statements, it was necessary to select 60 of the 240 possible pairs. The encircled x's in Table 8 indicate the value statements paired in

the values test instrument. In order to insure that each value would be paired with the other five values exactly four times and that the pairing was completely random, a computer program, given in Table 9, was utilized. The results of the random pairing is given in Table 10. Since the order in which the statement pairs were selected was not randomized, a further random selection was made to determine the sequence in which the statement pairs were to be presented in the final test instrument. To effect the above randomization, a total of 60 white lima beans were numbered, placed in a large-necked quart jar, the beans were removed one at a time and the number was recorded. A record of the sequence of removal of the 60 beans and the resultant pairing of value statements are given in Table 11.

Pretesting the Values Test Instrument

The values test instrument was pretested with the same mothers of Pawnee, Oklahoma who had pretested the interview. Only one value statement needed slight reworking to improve its clarity. The mothers were encouraged to make any suggestions which might improve the clarity of the statements. Also, they were requested to comment on the length of the values test instrument, ease of responding to the statements and any other suggestions for improvement. The results of the pretest of the values test were tabulated and analyzed to determine if a meaningful difference between the hierarchal ranking of the values was indicated. Although no statistical analysis was conducted on the pretesting results, it was believed that the difference between the values scores indicated by the Pawnee results between the finding from the values test and the interview was sufficient to proceed utilizing

the values test instrument in Stillwater.

Collecting the Data

The general procedure utilized in the collecting of the data was described in Chapter I. Since most of the mothers worked, difficulty in scheduling a time with each subject was encountered. Most of the data was obtained in the evenings when the mothers were at home and would be less distracted by outside influences. Approximately two to three weeks time lapsed between the completing of the interview by each mother and the completing of the test instrument.

Method of Data Analysis

Interview. The score results of the interviews conducted in Stillwater were computed, based on the computations described in the section "Development of the Instrument" in this chapter. The total scores were assigned a rank with the highest score being assigned the rank of number one. The results of the interview were statistically analyzed with the Kuder-Richardson formula 20 to determine the reliability coefficient (39). An estimate of reliability is given by:

$$r_{xx} = \frac{n}{n-1} \frac{s_x^2 - \sum_{i=1}^n p_i q_i}{s_x^2}$$

where n = number of test items

s_x^2 = variance of scores on test

p_i = proportion of persons endorsing item

q_i = $1 - p_i$

$$\begin{aligned}
 p_i q_i &= \text{product of proportion of acceptance and rejection of item } i \\
 \sum_{i=1}^n p_i q_i &= \text{sum of these products for } n \text{ items} \\
 s_x^2 &= \frac{\sum X_i^2 - \frac{(\sum X_i)^2}{n}}{n-1}
 \end{aligned}$$

X_i = number of persons accepting test item i

$n-1$ - number of degrees of freedom in statistical test

The formula given above is frequently referred to as the Kuder-Richardson formula 20. The coefficient r_{xx} as computed by this formula will give values ranging from zero to unity.

Frequently the split-half method of estimating reliability coefficients is used. Ferguson (39) points out, however, that if all assumptions implicit in the split-half method of estimating reliability coefficients are satisfied, the split-half and the Kuder-Richardson formula 20 will yield identical results (39). Since these assumptions are rarely met, the Kuder-Richardson formula 20 was utilized to analyze the results of the interview. Ferguson points out also that it may be shown that if a test is split in all possible ways, the average of all the split-half reliability coefficients with the Spearman-Brown correction is the Kuder-Richardson formula 20 (39).

The Kuder-Richardson formula 20 was utilized in the analysis of the results of the interview since it is a measure of the internal consistency or homogeneity, or scalability, of the test material. The reliability coefficient will be very high if the items on a test have high intercorrelations with each other and are measures of much the same attribute. The reliability coefficient will be low if either of the items measure different attributes or if error is present.

Values Test Instrument. The results of the mothers indicating

in the instrument which value statement best described her desired behavior was tabulated for data analysis. A score was computed for each value statement on the basis of an assigned numerical value to the two possible alternatives for each statement. The scores were designated as follows:

1 = The value statement being chosen

0 = The value statement not being chosen

A total score for each value statement was computed. The total of the four statements for each value was determined by adding the individual totals of each of the four statements. The total scores were assigned a rank with the highest score being assigned the rank of number one.

CHAPTER IV

RESULTS AND DISCUSSION

The interview and the values test instrument are presented in this chapter. The results of each and their analysis are also given.

The Interview

The number of mothers completing the interview was 42. The scoring of the response to each value statement by the 42 mothers is presented in Table 12, Appendix E, to indicate how the total score, as recorded in Table 3, was computed. Given in Table 3 is the hierarchal ranking of the values. The hierarchal ranking of the value statement numbers which were selected for use in the instrument is presented in Table 4.

As described in Chapter III, the results of the interview was analyzed with the Kuder-Richardson formula 20 to determine the reliability coefficient. The computed value of each value statement, as computed by the Kuder-Richardson formula 20, is given in Table 13 and 14, Appendix F. A reliability coefficient of 0.99 was obtained with the above formula, which is significant at the 0.001 level of significance.

The Food-Related Values Interview

Directions: In this deck of cards are 48 statements related to foods. Each statement is on a separate 3 x 5 inch card. You are requested to place each card bearing a statement under one of the three

TABLE 3 Hierarchal ranking of values obtained from the interview

Statement Number	Work Efficiency	Education	Economy	Friendship	Family Life	Health
1	61	42	57	36	67	64
2	68	21	62	52	41	37
3	39	48	35	37	64	56
4	61	55	37	61	75	35
5	77	51	73	49	62	51
6	27	26	69	58	51	73
7	53	53	26	32	58	61
8	62	34	58	49	71	58
TOTALS	448	330	417	374	489	435
RANK	2	6	4	5	1	3

TABLE 4 Hierarchal ranking of value statement numbers

Ranking	WE State- ment No.	Ed State- ment No.	Ec State- ment No.	Fr State- ment No.	FL State- ment No.	He State- ment No.
1	5	4	5	4	4	6
2	2	5	6	6	8	1
3	1	7	2	8	1	7
4	8	3	8	2	3	8

WE = Work Efficiency

Fr = Friendship

Ed = Education

FL = Family Life

Ec = Economy

He = Health

following categories.

The categories are:

1. This is me ALL of the time.
2. This is me SOME of the time.
3. This is me NONE of the time.

Place each Statement card under the category that best represents the way you feel. If it is not possible for you to immediately carry out the activity, answer the way you would most like to do so.

Food-Related Statements That Were Placed
on Cards to be Sorted

1. When I cook beans, I cook enough for several meals in order to have time to do other things.
2. I learn more about what my children need from a study group.
3. I take some food over to a friend in order to help her out when she has company.
4. I try to let the family eat dinner at the time that makes everybody the happiest.
5. I make a point of thinking through how to make a recipe before I begin putting it together.
6. I try to store food supplies and equipment in the area nearest to where I will be using them.
7. I feel I need to learn more about how to feed my family.
8. I often buy food that is "ready to eat" in order to save time and work.
9. I look for information on food or recipes when I read a magazine or newspaper.
10. I will wait until later to buy food if I can get a ride to a store that sells it cheaper.
11. I make an effort to make meal time a happy time for the family.
12. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.

13. I try to buy foods on special sales (lower prices) when I go to the grocery store.
14. I let my children invite their friends to share food.
15. I try to find ways to use left-over foods so nothing is thrown away.
16. When I begin to cook a meal I make sure that I have everything I need before I start.
17. I listen to the radio and watch television to try to learn about the kinds of foods my family needs.
18. I save the spoons for the children to lick and the bowl for them to scrape after I have made frosting and iced the cake.
19. I read the newspapers to learn what foods my family needs.
20. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
21. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
22. When my child gets sick, I wonder if it is because of some food he should have had but has not had.
23. Before buying food, I compare the cost of "ready to serve" foods with the cost of making them myself.
24. I am careful to prepare foods in ways that will make them good for my family.
25. I show love for my child by preparing the foods I know he especially likes.
26. I watch for new recipes that I can try when I look at newspapers and magazines.
27. I try to participate in any kind of adult class that can help me learn how to cook the kinds of foods my family needs.
28. I do not buy "ready to serve" foods when they cost more than those I can fix.
29. I fix rich desserts only once in a while so my family will not be fat.
30. I do not cook as many dishes of food as I could so that I can have time to visit and do things with my family.

31. It is important to prepare the best food in the least possible time.
32. If I have a friend who lives alone, I sometimes invite her to share a special meal with us.
33. I learn more about what foods my children need from talking with people who are trained to know this.
34. When a friend has a birthday, I make a cake for her.
35. After awhile, if my child is not eating well, I take him to the doctor.
36. In order to buy only the items I will need, before I go to the grocery store I make a list.
37. If I think someone in my family has a sickness that can spread to other family members, I will keep that person alone in a room or in a separate place and take food there.
38. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
39. I encourage my children to go on picnics with their friends.
40. I often have coffee with my neighbor or friends.
41. I arrange to do the cooking when my family is busy or away from home so that I can be free to do some activity the family wants to do together.
42. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
43. I try to choose a good variety of food so that I will not feel tired.
44. I take food to a friend who is sick.
45. I take turns cooking favorite foods of everybody in the family.
46. I do not entertain people because it costs too much.
47. I try to use foods that I feel will help keep my family well.
48. I compare prices between the neighborhood grocery store and the supermarket.

Values Test Instrument

The same 42 mothers who completed the interview also completed the test instrument. The results of the response with the values test instrument in Stillwater are given in Appendix G, Table 15, listing the number of mothers who indicated the preference in each paired statement. The summary of the results with the values test instrument is given in Table 5 in which the score and rank is given for each value.

A comparison of the results of the interview and the test instrument are presented in Table 6 in which the score and rank is given for each value for each test. It should be noted that since the scoring in each test was different, the actual scores of each value in the two tests cannot be equated as equal numerically. However, a comparison can be made of the hierarchal ranking of the values in each test.

A comparison of the values determined by the use of the values test is given in Table 7 in which the test scores for each value and the proportion each value score represents of the total of all values score are listed. The hierarchal ranking of the values are again presented in Table 7.

The Values Test Instrument

Food Related Choices of Mothers of Preschool Children

Mothers of preschool age children have been chosen by research workers at Oklahoma State University as people who can assist them. The way these mothers think and act is important to know in order to help them with selection and preparation of food needed and enjoyed by their families.

TABLE 5 Summary of Stillwater results using the values test instrument

Paired Statement No.	Totals of Each Value					
	Health	Family Life	Education	Economy	Friendship	Work Efficiency
1	61	138	78	103	79	75
2	131	214	56	77	137	111
3	178	105	50	149	70	90
4	126	74	127	175	68	48
TOTALS	496	531	311	504	354	324
RANK	3	1	6	2	4	5

TABLE 6 Comparison of interview and values test instrument results

Test	Health		Family Life		Education		Economy		Friendship		Work Efficiency	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Interview	435	3	489	1	330	6	417	4	374	5	448	2
Values Test Instrument	496	3	531	1	311	6	504	2	354	4	324	5

TABLE 7 Comparison of values determined by use of the values test instrument

Value Statement	Score	Proportion ¹	Rank
Health	496	0.197	3
Family Life	531	0.211	1
Education	311	0.123	6
Economy	504	0.200	2
Friendship	354	0.140	4
Work efficiency	324	0.129	5
TOTALS	2520	1.000	

¹Based on 1.000

From a previous interview the following statements were selected by you to use in making choices between activities that are important. These statements now appear in pairs. Here is an example:

- x A. I encourage my children to go on picnics with their friends.
 B. I listen to the radio and watch television to try to learn about the kinds of food my family needs.

Which of the two paired statements is most important to you or which would you do first? It is very important that you feel free in making choices. There is no right and wrong answer, but the way you feel is important. Sometimes the choice between the pair will be hard to make, but make a choice in every pair. Usually your first impression is your best choice of how you feel. Please be sure to make a choice between each pair of statements.

Please put an X in front of either A or B. DO NOT SKIP.

1. A. I try to have all the family eat at least one meal a day together.
 B. After awhile, if my child is not eating well, I take him to the doctor.
2. A. I learn more about what foods my children need from talking with people who are trained to know this.
 B. I am careful to prepare foods in ways that will make them good for my family.
3. A. I feel I need to learn more about how to feed my family.
 B. I try to find ways to use left-over foods so nothing is thrown away.
4. A. In order to buy only the items I will need, before I go to the grocery store I make a list.
 B. If I have a friend who lives alone, I invite her to share a special meal with us.
5. A. In order to buy only the items I will need, before I go to the grocery store I make a list.
 B. After awhile, if my child is not eating well, I take him to the doctor.

6. A. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
 B. I let my children invite their friends to share food.
7. A. I let my children invite their friends to share food.
 B. I try to choose a good variety of food so that I will not feel tired.
8. A. I learn more about what foods my children need from talking with people who are trained to know this.
 B. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
9. A. If I have a friend who lives alone, I invite her to share a special meal with us.
 B. After awhile, if my child is not eating well, I take him to the doctor.
10. A. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
 B. I compare prices between the neighborhood grocery store and the supermarket.
11. A. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
 B. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
12. A. I try to store food supplies and equipment in the area nearest to where I will be using them.
 B. I make an effort to make meal time a happy time for the family.
13. A. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
 B. I feel I need to learn more about how to feed my family.
14. A. I feel I need to learn more about how to feed my family.
 B. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
15. A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
 B. I am careful to prepare foods in ways that will make the good for my family.

16. A. I try to store food supplies and equipment in the area nearest to where I will be using them.
 B. I try to choose a good variety of food so that I will not feel tired.
17. A. I try to learn more about what foods my children need from talking with people who are trained to know this.
 B. After awhile, if my child is not eating well, I take him to the doctor.
18. A. I try to store food supplies and equipment in the area nearest to where I will be using them.
 B. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
19. A. I look for information on food or recipes when I read a magazine or newspaper.
 B. I try to choose a good variety of food so that I will not feel tired.
20. A. I compare prices between the neighborhood grocery store and the supermarket.
 B. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
21. A. I watch for new recipes that I can try when I look at newspapers and magazines.
 B. I try to buy foods on special sales (lower prices) when I go to the grocery store.
22. A. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
 B. In order to buy only the items I will need, before I go to the grocery store I make a list.
23. A. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
 B. I encourage my children to go on picnics with their friends.
24. A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
 B. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
25. A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
 B. I make an effort to make meal time a happy time for the family.

26. A. I encourage my children to go on picnics with their friends.
 B. I try to let the family eat dinner at the time that makes everybody the happiest.
27. A. I let my children invite their friends to share food.
 B. After awhile, if my child is not eating well, I take him to the doctor.
28. A. I feel I need to learn more about how to feed my family.
 B. I encourage my children to go on picnics with their friends.
29. A. I try to store food supplies and equipment in the area nearest to where I will be using them.
 B. I try to buy foods on special sales (lower prices) when I go to the grocery store.
30. A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
 B. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
31. A. I learn more about what foods my children need from talking with people who are trained to know this.
 B. I try to find ways to use left-over foods so nothing is thrown away.
32. A. If I have a friend who lives alone, I invite her to share a special meal with us.
 B. I make an effort to make meal time a happy time for the family.
33. A. I compare prices between the neighborhood grocery store and the supermarket.
 B. I make an effort to make meal time a happy time for the family.
34. A. When I begin to cook a meal I make sure that I have everything I need before I start.
 B. I watch for new recipes that I can try when I look at newspapers and magazines.
35. A. I feel I need to learn more about how to feed my family.
 B. I make an effort to make meal time a happy time for the family.
36. A. I let my children invite their friends to share food.
 B. I save the spoons for the children to lick and the bowl for them to scrape after I have made frosting and iced the cake.

37. _____ A. I try to let the family eat dinner at the time that makes everybody the happiest.
_____ B. I try to choose a good variety of food so that I will not feel tired.
38. _____ A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
_____ B. I watch for new recipes that I can try when I look at newspapers and magazines.
39. _____ A. I watch for new recipes that I can try when I look at newspapers and magazines.
_____ B. I let my children invite their friends to share food.
40. _____ A. I compare prices between the neighborhood grocery store and the supermarket.
_____ B. I encourage my children to go on picnics with their friends.
41. _____ A. When I begin to cook a meal I make sure that I have everything I need before I start.
_____ B. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
42. _____ A. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
_____ B. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
43. _____ A. I try to buy foods on special sales (lower prices) when I go to the grocery store.
_____ B. After awhile, if my child is not eating well, I take him to the doctor.
44. _____ A. I watch for new recipes that I can try when I look at newspapers and magazines.
_____ B. If I have a friend who lives alone, I invite her to share a special meal with us.
45. _____ A. In order to buy only the items I will need, before I go to the grocery store I make a list.
_____ B. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
46. _____ A. I watch for new recipes that I can try when I look at newspapers and magazines.
_____ B. I save the spoons for the children to lick and the bowl for them to scrape after I have made frosting and iced the cake.

47. A. I feel I need to learn more about how to feed my family.
 B. I save the spoons for the children to lick and the bowl for them to scrape after I have made frosting and iced the cake.
48. A. I compare prices between the neighborhood grocery store and the supermarket.
 B. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
49. A. I look for information on food or recipes when I read a magazine or newspaper.
 B. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
50. A. I compare prices between the neighborhood grocery store and the supermarket.
 B. I let my children invite their friends to share food.
51. A. I try to let the family eat dinner at the time that makes everybody the happiest.
 B. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
52. A. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
 B. I watch for new recipes that I can try when I look at newspapers and magazines.
53. A. I look for information on food or recipes when I read a magazine or newspaper.
 B. In order to buy only the items I will need, before I go to the grocery store, I make a list.
54. A. I try to buy foods on special sales (lower prices) when I go to the grocery store.
 B. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
55. A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
 B. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
56. A. In order to buy only the items I will need, before I go to the grocery store, I make a list.
 B. I try to choose a good variety of food so that I will not feel tired.

57. _____ A. I try to store food supplies and equipment in the area nearest to where I will be using them.
 _____ B. I let my children invite their friends to share food.
58. _____ A. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
 _____ B. I compare prices between the neighborhood grocery store and the supermarket.
59. _____ A. I try to find ways to use left-over foods so nothing is thrown away.
 _____ B. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
60. _____ A. I encourage my children to go on picnics with their friends.
 _____ B. I try to choose a good variety of food so that I will not feel tired.

The following additional information is needed, but your name will not be used in any of this material.

Please make an X near all items below that describe you.

1. To what age group do you belong? 15 to 19 _____ 20 to 29 _____
 30 to 39 _____ 40 to 49 _____
2. How far did you go in school? Completed eighth-grade or less _____
 attended high school _____ graduated from high school _____
 attended college _____ graduated from college _____
3. Do you have a job outside your home? yes _____
 no _____
4. With which family members are you living?
 husband _____ mother _____ father _____
 father-in-law _____ mother-in-law _____ other (list) _____
 number of children under 7 yrs. old _____
 number of children 7 to 12 yrs. old _____
 number of children 12 to 18 yrs. old _____
 number of children over 18 yrs. old _____

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter summarizes the findings of the study undertaken to investigate the food-related values of mothers in low-income families as a basis for arriving at implications for college and university food and nutrition curricula. A review of the literature revealed values which had been studied by previous researchers in home economic-related studies. Also various studies of low-income family life styles were reviewed as background material for the study.

The values studied were (a) economy, (b) health, (c) work efficiency, (d) family life, (e) education, and (f) friendship. The six values were studied using an interview and a values test instrument. A total of 42 mothers in low-income families of Stillwater, Oklahoma participated in the study. The interview and the test instrument were both pretested with eight mothers in low-income families of Pawnee, Oklahoma.

The responses of the Stillwater mothers were analyzed and a comparison of the results of each test was made. The results of the interview were analyzed by the Kuder-Richardson formula 20 to establish the test reliability.

Summary of Findings

The results of the interview conducted with 42 mothers in

low-income families of Stillwater indicated the following hierarchal ranking of food-related values from highest to lowest: (a) family life, (b) work efficiency, (c) health, (d) economy, (e) friendship, and (f) education. A statistical analysis of the interview results gave a reliability coefficient of 0.99.

The results of the 42 mothers completing the values test instrument composed of forced-pairing of value statements yielded the following hierarchal ranking of values: (a) family life, (b) economy, (c) health, (d) friendship, (e) work efficiency, and (f) education. A comparison of the results of the interview and that of the test instrument showed that the mothers ranked the following the same in each test:

1. family life
3. health
6. education

Friendship received similar ranking in each test with a rank of 5 and 4 in the interview and the test instrument respectively. Work efficiency ranked second in the interview but supplanted economy for second place in the values test instrument.

Conclusions

The results of the study lead to the conclusion that the combined results of the interview and the values test instrument, developed by the researcher, is one means to identify the priority of some food-related values of mothers in low-income families. Also, the food-related values identified by the mothers provide a basis for emphasis in college and university food and nutrition curricula and for home economists working with mothers in low-income families.

It is further concluded that since family life ranked highest in the value scales, the mothers in low-income families are most interested in relating to the members of their family. Therefore, it would appear that nutrition education would be most effective if this value could be emphasized in attempting to motivate low-income mothers of preschool children.

Recommendations

On the basis of the findings and conclusions of the study, the following recommendations proposed by the researcher are:

1. The interview and values test be utilized in a wider geographical area.
2. The same method and procedure be utilized to determine the value scales of other age groups in order to develop more effective methods of nutrition education.
3. The hierarchal ranking of values be used as a basis for planning curricula for high school, college, and university programs involving work with low-income mothers of preschool children.
4. The hierarchal ranking be utilized by home economists in planning nutrition education for these mothers.
5. Since the measured value scales are not a total inventory, it is recommended that companion inventories for this population be utilized, if available.

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APPENDIX A

FIRST INSTRUCTIONS TO THE PANEL OF SIX FOOD AND NUTRITION
EXPERTS IN HOW TO IDENTIFY FOOD-RELATED STATEMENT
AS ASSOCIATED WITH A SPECIFIC VALUE

Interview Questions for the Development of an Instrument for the
Assessment of Food Related Values of Low-Income Mothers
of Preschool Children

You have been selected to be a judge of the following questions to see if you think the following statements are directly related to one of the seven values which are defined on the next page. The statements will be found on numbered cards. There will be seven cards with the name of one value written on each. You are asked to line up the cards across a flat surface and to then begin reading the statements. After reading each statement, the card is to then be stacked in front of the value to which you think it is related. There will be an eighth card which you may put adjacent to the seven with values and it will be labeled "Cannot be related to any value." If you are unable to relate a statement to any value, it may be stacked in front of this card.

You will find the intended key to the statements in a sealed envelop to be opened after you have sorted the cards. Please cross out any statements when seem unrelated to you and write in any way you feel the statement may be improved or made more direct. Also, please feel free to indicate any area which you feel has not been covered which would be related to one of these values. On Monday, March 1, I shall pick up this packet of information should you have had time to finish with them.

Following your work with the cards, I shall make necessary correction and give them to a group of Head Start mothers here in Stillwater for a "trial interview" before taking them to Guthrie Head Start mothers who are to be the subjects to respond in this study. The mothers will not be told of the purpose of the study and will be asked to sort out the cards into piles labeled, "This is me ALL OF THE TIME," "This is me SOME OF THE TIME," and "This is me NONE OF THE TIME." The data obtained from them will be analyzed and will be the basis for the development of the instrument. The instrument will then be tested for use with the same group of mothers.

I shall greatly appreciate the time and assistance you will have given for this research which will be used for a Master's Thesis.

Carol B. Suter

Selected Definitions of Seven Values for the First
Set of Instructions to the Panel of Specialists

VALUES: Values are conceptions of the desirable which affect an individual's choices among possible courses of action.

ECONOMY: Use of money, goods, services and time to obtain the greatest amount of return from the resources used for food.

HEALTH: State of physical and mental well being.

WORK EFFICIENCY: Accomplishing a task or producing a food product to meet a desired standard in the shortest time and with the least possible expenditure of time and energy.

STATUS: Having more of the expensive or costly types of foods than other people with whom one is associated.

FAMILY LIFE: Sharing of common goods and experiences, related to food, by a group of individuals who have a blood or marriage relationship and who are living together in an established home.

EDUCATION: Purposeful self-improvement involving some form of foods and nutrition learning for self or family.

FRIENDSHIP: Relationship between two people, involving food, and characterized by mutual attraction.

APPENDIX B

March 22, 1971

Dear Friend:

As a graduate student in the Department of Food, Nutrition, and Institution Administration in the College of Home Economics at Oklahoma State University, I have selected as my thesis research, "The Development of an Instrument for the Assessment of Food Related Values of Low Income Mothers of Preschool Aged Children." To assist in this study, you have been selected as an expert who can identify food oriented statements which are related to one of six values being tested.

In the enclosed material are six separate sheets. At the top of each sheet is the name of the value being investigated. This value is also defined as it is being used in this study. Both positive and negative value statements are included. Accompanying this material (stapled together) are 86 statements, each of which is designed to express one of the six values defined on separate sheets. Please read each of the 86 statements and decide which of the six values is expressed in it. Then find the separate sheet with the value concerned as its heading, and circle the number of the value statement on the sheet. Continue until you have identified each statement with one of the six values.

If you find a statement which does not appear to be related to any of the six values, circle its number opposite the written statement. If you feel you can rewrite the statement so that it will be related to one of the six defined values, please do so. Be sure to write in the value to which your revised statement is related to the left of the number of the statement.

Your expertise and time are greatly appreciated. When the values identified as being important to the subjects in this research are determined, you will receive a copy of this information.

May we have your evaluation at your earliest convenience. The investigator will pick up your evaluation at the place which you designate to her.

Carol B. Suter
Graduate Student
Home Phone: 372-9210

Helen F. Barbour, Ph.D.
Thesis Adviser
Home Phone: 372-2918

Definition Of The Term Value And The Six
Selected Values

VALUES: Values are conceptions of the desirable which affect an individual's choice among possible courses of action.

ECONOMY: Use of money, goods, services and time to obtain the greatest amount of return from the resources used for food.

HEALTH: State of physical and mental well being.

WORK EFFICIENCY: Accomplishing a task or producing a food product to meet a desired standard in the shortest time and with the least possible expenditure of time and energy.

FAMILY LIFE: Sharing of common goods and experiences, related to food, by a group of individuals who have a blood or marriage relationship and who are living together in an established home.

EDUCATION: Purposeful self-improvement involving some form of foods and nutrition learning for self or family.

FRIENDSHIP: Relationship between two people, involving food, and characterized by mutual attraction.

EDUCATION: Purposeful self-improvement involving some form of foods
and nutrition learning for self or family.

1.	19.	36.	53.	70.
2.	20.	37.	54.	71.
3.	21.	38.	55.	72.
4.	22.	39.	56.	73.
5.	23.	40.	57.	74.
6.	24.	41.	58.	75.
7.	25.	42.	59.	76.
8.	26.	43.	60.	77.
9.	27.	44.	61.	78.
10.	28.	45.	62.	79.
11.	29.	46.	63.	80.
12.	30.	47.	64.	81.
13.	31.	48.	65.	82.
14.	32.	49.	66.	83.
15.	33.	50.	67.	84.
16.	34.	51.	68.	85.
17.	35.	52.	69.	86.
18.				

HEALTH: State of physical and mental well being.

1.	19.	36.	53.	70.
2.	20.	37.	54.	71.
3.	21.	38.	55.	72.
4.	22.	39.	56.	73.
5.	23.	40.	57.	74.
6.	24.	41.	58.	75.
7.	25.	42.	59.	76.
8.	26.	43.	60.	77.
9.	27.	44.	61.	78.
10.	28.	45.	62.	79.
11.	29.	46.	63.	80.
12.	30.	47.	64.	81.
13.	31.	48.	65.	82.
14.	32.	49.	66.	83.
15.	33.	50.	67.	84.
16.	34.	51.	68.	85.
17.	35.	52.	69.	86.
18.				

ECONOMY: Use of money, goods, services and time to obtain the greatest amount of return from the resources used for food.

1.	19.	36.	53.	70.
2.	20.	37.	54.	71.
3.	21.	38.	55.	72.
4.	22.	39.	56.	73.
5.	23.	40.	57.	74.
6.	24.	41.	58.	75.
7.	25.	42.	59.	76.
8.	26.	43.	60.	77.
9.	27.	44.	61.	78.
10.	28.	45.	62.	79.
11.	29.	46.	63.	80.
12.	30.	47.	64.	81.
13.	31.	48.	65.	82.
14.	32.	49.	66.	83.
15.	33.	50.	67.	84.
16.	34.	51.	68.	85.
17.	35.	52.	69.	86.
18.				

FAMILY LIFE: Sharing of common goods and experiences, related to food, by a group of individuals who have a blood or marriage relationship and who are living together in an established home.

1.	19.	36.	53.	70.
2.	20.	37.	54.	71.
3.	21.	38.	55.	72.
4.	22.	39.	56.	73.
5.	23.	40.	57.	74.
6.	24.	41.	58.	75.
7.	25.	42.	59.	76.
8.	26.	43.	60.	77.
9.	27.	44.	61.	78.
10.	28.	45.	62.	79.
11.	29.	46.	63.	80.
12.	30.	47.	64.	81.
13.	31.	48.	65.	82.
14.	32.	49.	66.	83.
15.	33.	50.	67.	84.
16.	34.	51.	68.	85.
17.	35.	52.	69.	86.
18.				

FRIENDSHIP: Relationship between two people, involving food, and characterized by mutual attraction.

1.	19.	36.	53.	70.
2.	20.	37.	54.	71.
3.	21.	38.	55.	72.
4.	22.	39.	56.	73.
5.	23.	40.	57.	74.
6.	24.	41.	58.	75.
7.	25.	42.	59.	76.
8.	26.	43.	60.	77.
9.	27.	44.	61.	78.
10.	28.	45.	62.	79.
11.	29.	46.	63.	80.
12.	30.	47.	64.	81.
13.	31.	48.	65.	82.
14.	32.	49.	66.	83.
15.	33.	50.	67.	84.
16.	34.	51.	68.	85.
17.	35.	52.	69.	86.
18.				

WORK EFFICIENCY: Accomplishing a task or producing a food product to meet a desired standard in the shortest time and with the least possible expenditure of time and energy.

1.	19.	36.	53.	70.
2.	20.	37.	54.	71.
3.	21.	38.	55.	72.
4.	22.	39.	56.	73.
5.	23.	40.	57.	74.
6.	24.	41.	58.	75.
7.	25.	42.	59.	76.
8.	26.	43.	60.	77.
9.	27.	44.	61.	78.
10.	28.	45.	62.	79.
11.	29.	46.	63.	80.
12.	30.	47.	64.	81.
13.	31.	48.	65.	82.
14.	32.	49.	66.	83.
15.	33.	50.	67.	84.
16.	34.	51.	68.	85.
17.	35.	52.	69.	86.
18.				

Food Related Value Statements

Associated With A Value

1. I try to use foods that I feel will help keep my family well.
2. I don't entertain people because it costs too much.
3. I try to learn more about what foods my children need from talking with older people who have already raised a family.
4. There are just so many hours in a day so how much time I spend to prepare a meal is important.
5. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
6. It is important to prepare the best food in the least possible time.
7. I let my children invite their friends to share food.
8. I share a special recipe or way to fix food with a friend who needs to fix a meal for an important event.
9. I try to invite family friends to have refreshments with us as often as possible.
10. I allow my children to make some choice in what the family will eat together.
11. When my neighbor has not had time to make her husband a birthday cake, I cook his favorite kind and give it to her for him.
12. When my friend is having a birthday party for one of her children, I volunteer to help that friend.
13. I save the spoons for the children to lick and the bowl for them to scrape after I have made frosting and iced the cake.
14. When I have a tomato plant growing, I let the children help me water it.
15. I try to use the foods that are good for me every day.
16. When I fix pork for my family I cook it until the inside is color is gray-white.
17. I do not buy "ready to serve" foods when they cost more than those I can fix.
18. I do not bother to look for information on food or recipes when I read a magazine or newspaper.

19. I learn more about what foods my children need from talking with people who are trained to know this.
20. When I begin cooking, I don't check to see that I have everything I will need as I can borrow something if I don't have enough.
21. In order to visit we combine our food with that of another group of friends.
22. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
23. I feel that I can save time by planning for several days in advance what foods I will prepare for my family.
24. I encourage my children to go on picnics with their friends.
25. I take food to a friend who is sick.
26. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.
27. I often have coffee with my neighbor or friends.
28. When I go to the grocery store I try to buy everything I will need for several days in order to save time.
29. I am careful to prepare foods in ways that will make them good for my family.
30. I try to find ways to use left-over foods so nothing is thrown away.
31. I read the newspapers to learn what foods my family needs.
32. I always made good biscuits this way so there is no need for me to try any faster way.
33. Before buying food, I compare the cost of "ready to serve" foods with the cost of making them myself.
34. When I find a food my family likes, I buy it.
35. I learn more about what food my children need from a study group.
36. I compare prices between the neighborhood grocery store and the super market.
37. I try to cook things that I know all my family will like.
38. I do not cook as many dishes of food as I could so that I can have time to visit and do things with my family.

39. I take some food over to a friend in order to help her out when she has company.
40. Whenever I need something in cooking, I will stop and go buy it right then if I have the money.
41. I listen to the radio and watch T-V to try to learn about the kinds of foods my family needs.
42. I will wait to buy food later if I can get a ride to a store that sells it cheaper.
43. I try to choose a good variety of food so that I will not feel tired.
44. In order to buy only the items I will need, before I go to the grocery store I make a list.
45. What I do with food waste is not important to other people.
46. I feel I do not need to learn anything more about how to feed my family.
47. I make a point of thinking through how to make a recipe before I begin putting it together.
48. If I am invited to a meeting, then I feel it is important enough to stop what I am doing before I am finished if someone is going to talk about what foods my family needs.
49. We decide as a family what foods will be prepared.
50. When a friend has a birthday, I make a cake for her.
51. I often buy food that is "ready to eat" in order to save time and work.
52. When a P.T.A. speaker is going to talk about the food of people in other countries I try to attend the meeting.
53. If I think someone in my family has a sickness that can spread to other family members, I will keep that person alone in a room or in a separate place and take food there.
54. I try to let the family eat dinner at the time that makes everybody the happiest.
55. I try to participate in any kind of adult class that can help me learn how to cook the kinds of foods my family needs.
56. I try to buy foods on special sales (lower prices) when I go to the grocery store.

57. I fix rich desserts only once in a while so my family will not be fat.
58. I plan several days in advance what foods I will be cooking for my family.
59. I make an effort to make meal time a happy time for the family.
60. When I cook beans, I cook enough for several meals in order to have time to do other things.
61. I cook more than one food in the oven when I use it.
62. I watch for new recipes that I can try when I look at newspapers and magazines.
63. If I am able to have the commodity or plentiful foods, I try to find ways to use all of these foods.
64. I cook cabbage only until it is tender.
65. When I begin to cook a meal I make sure that I have everything I need before I start.
66. I cook mustard or turnip greens for several hours.
67. I do not take time to read the newspapers or magazines to learn about special food needs.
68. I take turns cooking favorite foods of everybody in the family.
69. If I have a friend who lives alone, I sometimes invite her to share a special meal with us.
70. I am always trying new quicker ways of fixing food.
71. I try to do most of my grocery shopping during the days of the week when there are more special prices offered.
72. I eat green and yellow vegetables daily in order to be able to see in a dim light or in the dark.
73. When I cook with milk and eggs I use the food right away or chill it.
74. During a meal I encourage the family to talk about the good times and any hard times they have had that day.
75. I plan ways to prepare a meal that will take the least amount of time.
76. I try to store food supplies and equipment in the area nearest to where I will be using them.

77. I like to use the commodity or plentiful foods as they save me money to use for something else.
78. I sometimes cook food to give as a gift for a fund raising church supper since you can make a dish cheaper than you can buy a gift.
79. I prefer to have a cup of coffee with a friend during any free time I have rather than doing things alone at home.
80. I arrange to do the cooking when my family is busy or away from home so that I can be free to do some activity the family wants to do together.
81. Whenever I cook up a big recipe of food that takes lots of time to prepare, I share some of the food with my neighbors if I know they like it.
82. I show love for my child by preparing the foods I know he especially likes.
83. When my child gets sick, I wonder if it is because of some food he has eaten.
84. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
85. After awhile, if my child is not eating well I take him to the doctor.
86. When my child gets sick, I wonder if it is because of some food he should have had but has not had.

Key to Food Related Value Statements Submitted the Second
Time to the Panel of Food and Nutrition Specialists

1. Health	25. Friendship	49. Family Life
2. Economy	26. Family Life	50. Friendship
3. Education	27. Friendship	51. Work Efficiency
4. Work Efficiency	28. Work Efficiency	52. Education
5. Work Efficiency	29. Health	53. Health
6. Work Efficiency	30. Economy	54. Family Life
7. Family Life	31. Education	55. Education
8. Friendship	32. Work Efficiency	56. Economy
9. Friendship	33. Economy	57. Health
10. Family Life	34. Economy	58. Work Efficiency
11. Friendship	35. Education	59. Family Life
12. Friendship	36. Economy	60. Work Efficiency
13. Family Life	37. Family Life	61. Work Efficiency
14. Family Life	38. Family Life	62. Education
15. Health	39. Friendship	63. Economy
16. Health	40. Work Efficiency	64. Health
17. Work Efficiency	41. Education	65. Work Efficiency
18. Education	42. Economy	66. Health
19. Education	43. Health	67. Education
20. Work Efficiency	44. Work Efficiency	68. Family Life
21. Friendship	45. Health	69. Friendship
22. Work Efficiency	46. Education	70. Work Efficiency
23. Work Efficiency	47. Work Efficiency	71. Economy
24. Friendship	48. Education	72. Health

73. Health
74. Family Life
75. Work Efficiency
76. Work Efficiency
77. Economy
78. Economy
79. Friendship
80. Family Life
81. Friendship
82. Family Life
83. Health
84. Health
85. Health
86. Health

APPENDIX C

TABLE C-1

Summary of the Data

Food Related Value Statements

Health:

- (43) 1. I try to choose a good variety of food so that I will not feel tired.
- (22) 2. When my child gets sick, I wonder if it is because of some food he should have had but has not.
- (37) 3. If I think someone in my family has a sickness that can spread to other family members, I will keep that person alone in a room or in a separate place and take food there.
- (29) 4. I fix rich desserts only once in a while so my family will not be fat.
- (47) 5. I eat green and yellow vegetables daily in order to be able to see in the dark.
- (24) 6. I am careful to prepare foods in ways that will make them good for my family.
- (42) 7. If my child ate poorly and I had some vitamin pills for children, I would give my child the vitamin pills.
- (35) 8. After awhile, if my child is not eating well, I take him to the doctor.

Family Life:

- (18) 1. I save the spoons for the children to lick and the bowl for them to scrape after I have made frosting and iced the cake.
- (30) 2. I do not cook as many dishes of food as I could so that I can have time to visit and do things with my family.

- (4) 3. I try to let the family eat dinner at the time that makes everybody the happiest.
- (11) 4. I make an effort to make meal time a happy time for the family.
- (25) 5. I show love for my child by preparing the foods I know he especially likes.
- (41) 6. I arrange to do the cooking when my family is busy or away from home so that I can be free to do some activity the family wants to do together.
- (45) 7. I take turns cooking favorite foods of everybody in the family.
- (12) 8. I try to have all the family eat at least one meal a day together so the family can have some time to talk together.

Education:

- (17) 1. I listen to the radio and watch television to try to learn about the kinds of foods my family needs.
- (2) 2. I learn more about what my children need from a study group.
- (7) 3. I feel I need to learn more about how to feed my family.
- (26) 4. I watch for new recipes that I can try when I look at newspapers and magazines.
- (9) 5. I look for information on food or recipes when I read a magazine or newspaper.
- (27) 6. I try to participate in any kind of adult class that can help me learn how to cook the kinds of foods my family needs.
- (33) 7. I learn more about what foods my children need from talking with people who are trained to know this.

- (19) 8. I read the newspapers to learn what foods my family needs.

Economy:

- (28) 1. I do not buy "ready to serve" foods when they cost more than those I can fix.
- (36) 2. In order to buy only the items I will need, before I go to the grocery store I make a list.
- (10) 3. I will wait until later to buy food if I can get a ride to a store that sells it cheaper.
- (23) 4. Before buying food, I compare the cost of "ready to serve" foods with the cost of making them myself.
- (13) 5. I try to buy foods on special sales (lower prices) when I go to the grocery store.
- (15) 6. I try to find ways to use left-over foods so nothing is thrown away.
- (46) 7. I do not entertain people because it costs too much.
- (48) 8. I compare prices between the neighborhood grocery store and the supermarket.

Friendship:

- (3) 1. I take some food over to a friend in order to help her out when she has company.
- (32) 2. If I have a friend who lives alone, I sometimes invite her to share a special meal with us.
- (40) 3. I often have coffee with my neighbor or friends.
- (39) 4. I encourage my children to go on picnics with their friends.
- (44) 5. I take food to a friend who is sick.
- (14) 6. I let my children invite their friends to share food.

- (34) 7. When a friend has a birthday, I make a cake for her.
- (21) 8. When my friend is having a birthday party for one of her children, I volunteer to help that friend.

Work Efficiency:

- (20) 1. When I make cornbread, I get out everything I need before I begin if I think I will have to spend time looking for pans or any of the things to be cooked.
- (38) 2. When I go to the grocery store, I plan the order in which I will pick up needed items to keep from going back to the same places again.
- (1) 3. When I cook beans, I cook enough for several meals in order to have time to do other things.
- (31) 4. It is important to prepare the best food in the least possible time.
- (6) 5. I try to store food supplies and equipment in the area nearest to where I will be using them.
- (8) 6. I often buy food that is "ready to eat" in order to save time and work.
- (5) 7. I make a point of thinking through how to make a recipe before I begin putting it together.
- (16) 8. When I begin to cook a meal I make sure that I have everything I need before I start.

Key to Value Statements

- | | |
|---------------------|---------------------|
| 1. Work Efficiency | 25. Family Life |
| 2. Education | 26. Education |
| 3. Friendship | 27. Education |
| 4. Family Life | 28. Economy |
| 5. Work Efficiency | 29. Health |
| 6. Work Efficiency | 30. Family Life |
| 7. Education | 31. Friendship |
| 8. Work Efficiency | 32. Work Efficiency |
| 9. Education | 33. Education |
| 10. Economy | 34. Friendship |
| 11. Family Life | 35. Health |
| 12. Family Life | 36. Economy |
| 13. Economy | 37. Health |
| 14. Friendship | 38. Work Efficiency |
| 15. Economy | 39. Friendship |
| 16. Work Efficiency | 40. Friendship |
| 17. Education | 41. Family Life |
| 18. Family Life | 42. Health |
| 19. Education | 43. Health |
| 20. Work Efficiency | 44. Friendship |
| 21. Friendship | 45. Family Life |
| 22. Health | 46. Economy |
| 23. Economy | 47. Health |
| 24. Health | 48. Economy |

APPENDIX D

TABLE 8 Pairings of values statements for food-related values test statements

		1 Work Eff.				2 Ed.				3 Ec.				4 Fr.				5 Family Life				6 Health			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1 W.E.	1					x	x	x	x	(x)	x	x	x	x	(x)	x	x	(x)	(x)	x	x	x	x	(x)	x
	2					(x)	x	x	x	x	x	x	(x)	x	x	(x)	x	(x)	(x)	x	x	(x)	(x)	x	x
	3					(x)	x	x	(x)	x	x	(x)	(x)	(x)	(x)	x	x	x	x	x	x	x	x	x	x
	4					(x)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	(x)	x	x
2 Ed.	1									(x)	x	x	x	x	(x)	x	(x)	x	x	(x)	x	x	x	x	x
	2									x	x	(x)	x	x	x	(x)	x	x	x	x	x	x	x	(x)	x
	3									x	(x)	x	x	x	x	x	x	x	x	x	x	(x)	(x)	x	x
	4									x	(x)	x	x	(x)	x	x	x	(x)	(x)	(x)	x	x	x	x	x
3 Ec.	1													x	x	x	x	x	(x)	x	x	x	x	x	(x)
	2													x	x	x	x	x	(x)	x	x	x	x	x	x
	3													x	x	x	(x)	x	x	(x)	x	x	x	(x)	(x)
	4													(x)	(x)	(x)	x	(x)	x	x	x	x	(x)	x	x
4 Fr.	1																	x	x	x	(x)	x	x	(x)	x
	2																	x	x	(x)	x	x	x	(x)	(x)
	3																	x	(x)	x	x	x	x	x	x
	4																	(x)	x	x	x	x	x	x	(x)
5 F.L.	1																					x	x	x	x
	2																					x	(x)	x	(x)
	3																					x	x	x	x
	4																					x	(x)	(x)	x

TABLE 9 Computer program for random selection of value statements
pairs for values test instrument.

```

1.   Dimension N(8)
2.   Write (6,2)
3.   2 Format ('1',15X,' Randomization for Mrs. Suter   Six values
      with F, four statements per value')
4.   Write (6,4)
5.   4 Format ('0', '   If statement-pair (C,D) corresponds to value-
      pair 1(A,B), this implies that '/1X,'statement C from value A
      is paired 2 with statement D from value B.')
6.   IX = 54321
7.   DO 14 I=1,5
8.   IP = I+1
9.   DO 14 J=IP,6
10.  Call Randu(IX,IY,X)
11.  IX = IY
12.  N(1) = 4.*X + 1.
13.  Call Randu(IX,IY,X)
14.  IX = IY
15.  N(2) = 4.*X + 1.
16.  DO 8 K=2,4
17.  K1 = 2*K - 1
18.  K2 = 2*K
19.  6 Call Randu(IX,IY,X)
20.  IX = IY
21.  N(k1) = 4.*X + 1.
22.  Call Randu(IX,IY,X)
23.  IX = IY
24.  N(K2) = 4.*X + 1.
25.  LM = K-1
26.  DO 8 L=1,LM
27.  L1 = 2*L - 1
28.  L2 = 2*L
29.  IF (IABS(N(L1) - N(K1)) + IABS(N(L2) - N(K2))) 6,6,8
30.  8 Continue
31.  Write (6,12) I, J, (N(K), K=1,8)
32.  12 Format('0', 'corresponding to value-pair (' ,1, ', ',11, ') select
      the 1 four statement-pairs '/15X,4(5X, '( ',11, ', ',11, ')')
33.  14 Continue
34.  Stop
35.  End

```


TABLE 10 (Continued)

Randomization for Mrs. Suter Six values with four statements per value

If statement-pair (C,D) corresponds to value-pair (A,B), this implies that statement C from value A is paired with statement D from value B.

Corresponding to value-pair (4,6) select the four statement-pairs
 (4,4) (2,4) (1,3) (2,3)

Corresponding to value-pair (5,6) select the four statement-pairs
 (2,2) (4,2) (4,3) (2,4)

^aExplanation of first pairing results:

Value No. 1, statement No. 3 is paired with value No. 2, statement No. 4.

Value No. 1, statement No. 4 is paired with value No. 2, statement No. 1.

Value No. 1, statement No. 2 is paired with value No. 2, statement No. 1.

Value No. 1, statement No. 3 is paired with value No. 2, statement No. 1.

TABLE 11 Sequence of selection of statement pairs

Bean Drawing Number	Number of Bean Drawn	Value Statements Paired	Bean Drawing Number	Number of Bean Drawn	Value Statements Paired
1	60	FL2 and He4	31	22	Ed3 and Ec2
2	33	Ed3 and He1	32	49	Fr4 and FL1
3	21	Ed4 and Ec2	33	42	Ec4 and FL1
4	38	Ec3 and Fr4	34	2	WE4 and Ed1
5	46	Ec3 and He4	35	31	Ed4 and FL1
6	10	WE3 and Fr2	36	52	Fr2 and FL3
7	56	Fr2 and He3	37	59	FL4 and He3
8	36	Ed3 and He2	38	3	WE2 and Ed1
9	53	Fr4 and He4	39	28	Ed1 and Fr2
10	6	WE3 and Ec4	40	40	Ec4 and Fr1
11	57	FL2 and He2	41	18	WE4 and He2
12	14	WE1 and FL1	42	50	Fr3 and FL2
13	1	WE3 and Ed4	43	48	Ec1 and He4
14	29	Ed4 and F12	44	26	Ed1 and Fr4
15	17	WE2 and He1	45	41	Ec3 and FL3
16	19	WE1 and He3	46	32	Ed1 and FL3
17	34	Ed3 and He4	47	30	Ed4 and FL3
18	15	WE1 and FL2	48	37	Ec4 and Fr3
19	35	Ed2 and He3	49	27	Ed2 and Fr3
20	45	Ec4 and He2	50	39	Ec4 and Fr2
21	24	Ed1 and Ec1	51	58	FL4 and He2
22	5	WE3 and Ec3	52	4	WE3 and Ed1
23	9	WE3 and Fr1	53	23	Ed2 and Ec3
24	11	WE2 and Fr3	54	44	Ec1 and FL2
25	16	WE2 and FL1	55	20	WE2 and He2
26	51	Fr1 and FL4	56	47	Ec3 and He3
27	54	Fr2 and He4	57	12	WE1 and Fr2
28	25	Ed4 and Fr1	58	7	WE2 and Ec4
29	8	WE1 and Ec1	59	43	Ec2 and FL2
30	13	WE2 and FL2	60	55	Fr1 and He3

APPENDIX E

TABLE 12 Results of Stillwater interviews

Statement Number	No. of Mothers Indicating					Total Score
	This Is Me All Of The Time	This Is Me Some Of The Time	This Is Me None Of The Time	Col. A x 2	Col. B x 1	Col. D Plus Col. E.
	Col. A	Col. B	Col. C	Col. D.	Col. E.	Col. E.
1WE3	12	15	15	24	15	39
2Ed2	4	13	25	8	13	21
3Fr1	6	24	12	12	24	36
4FL3	23	18	1	46	18	64
5WE7	19	15	8	38	15	53
6WE5	36	5	1	72	5	77
7Ed3	14	20	8	28	20	48
8WE6	4	19	19	8	19	27
9Ed5	17	17	8	34	17	51
10Ec3	9	17	16	18	17	35
11FL4	33	9	0	66	9	75
12FL8	31	9	2	62	9	71
13Ec5	31	11	0	62	11	73
14Fr6	16	26	0	32	26	58
15Ec6	28	13	1	56	13	69
16WE8	23	16	3	46	16	62
17Ed1	11	20	11	22	20	42
18FL1	27	13	2	54	13	67
19Ed8	9	16	17	18	16	34
20WE1	25	11	6	50	11	61
21FR8	14	21	7	28	21	49
22HE2	9	19	14	18	19	37
23Ec4	11	15	16	22	15	37
24He6	31	11	0	62	11	73
25FL5	21	20	1	42	20	62
26Ed4	19	17	6	38	17	55
27Ed6	7	12	23	14	12	26
28Ec1	21	15	6	42	15	57
29He4	5	25	12	10	25	35
30FL2	9	23	10	18	23	41
31WE4	20	21	1	40	21	61
32Fr2	14	24	4	28	24	52
33Ed7	16	21	5	32	21	53
34Fr7	7	18	17	14	18	32
35He8	22	14	6	44	14	58
36Ec2	22	18	2	44	18	62
37He3	22	12	8	44	12	56
38WE2	29	10	3	58	10	68
39Fr4	22	17	3	44	17	61
40Fr3	9	19	14	18	19	37

TABLE 12 (Continued)

Statement Number	No. of Mothers Indicating					Total Score
	This Is Me All Of The	This Is Me Some Of The	This Is Me None Of The	Col. A	Col. B	Col. D
	Time	Time	Time	x 2	x 1	Plus
	Col. A	Col. B	Col. C	Col. D	Col. E	Col. E.
41FL6	15	21	6	30	21	51
42He7	26	9	7	52	9	61
43He1	25	14	3	50	14	64
44Fr5	13	23	6	26	23	49
45FL7	21	16	5	42	16	58
46Ec7	4	18	20	8	18	26
47He5	15	21	6	30	21	51
48 Ec8	23	12	7	46	12	58
Totals	850	793	373			

APPENDIX F

TABLE OF CONTENTS

1-1-1

TABLE 13 Determination of Kuder-Richardson reliability coefficient (pq)

Statement No..	Sum 2 ^a	Sum 1 ^b	Np Sum 1 + 2	Nq ^c Sum 0 ^c	p Np/N	q Nq/N	p x q
1WE3	12	15	27	15	0.642857	0.357142	0.229591
2Ed2	4	13	17	25	0.404761	0.595238	0.240929
3Fr1	6	24	30	12	0.714285	0.285714	0.204081
4FL3	23	18	41	1	0.96190	0.023809	0.023242
5WE7	19	15	34	8	0.809523	0.190476	0.154194
6WE5	36	5	41	1	0.976190	0.023809	0.023242
7Ed3	14	20	34	8	0.809523	0.190476	0.154194
8WE6	4	19	23	19	0.547619	0.452380	0.247731
9Ed5	17	17	34	8	0.809523	0.190476	0.154194
10Ec3	9	17	26	16	0.619047	0.380952	0.235827
11FL4	33	9	42	0	1.0	0	0
12FL8	31	9	40	2	0.952380	0.047619	0.045351
13Ec5	31	11	42	0	1.0	0	0
14Fr6	16	26	42	0	1.0	0	0
15Ec6	28	13	41	1	0.976190	0.023809	0.02242
16WE8	23	16	39	3	0.928571	0.071428	0.066325
17Ed1	11	20	31	11	0.738095	0.261904	0.193310
18FL1	27	13	40	2	0.952380	0.045351	0.045351
19Ed8	9	16	25	17	0.595238	0.404761	0.240929
20WE1	25	11	36	6	0.857142	0.142857	0.122448
21Fr8	14	21	35	7	0.833333	0.166666	0.138888
22He2	9	19	28	14	0.666666	0.333333	0.222221
23Ec4	11	15	26	16	0.619047	0.380952	0.235827
24He6	31	11	42	0	1.0	0	0
25FL5	21	20	41	1	0.976190	0.023809	0.023242
26Ed4	19	17	36	6	0.857142	0.142857	0.122448
27Ed6	7	12	19	23	0.452380	0.547619	0.247731
28Ec1	21	15	36	6	0.857142	0.142857	0.122448
29He4	5	25	30	12	0.714285	0.285714	0.204081
30FL2	9	23	32	10	0.761904	0.238095	0.181405
31WE4	20	21	41	1	0.976190	0.023809	0.023242
32Fr2	14	24	38	4	0.904761	0.095238	0.086167
33Ed7	16	21	37	5	0.880952	0.119047	0.104874
34Fr7	7	18	25	17	0.595238	0.404761	0.240929
35He8	22	14	36	6	0.857142	0.142857	0.122448
36Ec2	22	18	40	2	0.952380	0.047619	0.045351
37He3	22	12	34	8	0.809523	0.190476	0.154194
38WE2	29	10	39	3	0.928571	0.071428	0.066325
39FR4	22	17	39	3	0.928571	0.071428	0.066325
40Fr3	9	19	28	14	0.666666	0.33333	0.222221
41FL6	15	21	36	6	0.857142	0.142857	0.122448
42He7	26	9	35	7	0.833333	0.166666	0.138888

TABLE 13 (Continued)

Statement No.	Sum 2 ^a	Sum 1 ^b	Np Sum 1 + 2	Nq ^c Sum 0	p Np/N	q Nq/N	p x q
43He1	25	14	39	3	0.928571	0.071428	0.066325
44Fr5	13	23	36	6	0.857142	0.142857	0.122448
45FL7	21	16	37	5	0.880950	0.119047	0.104874
46Ec7	4	18	22	20	0.523809	0.476190	0.249432
47He5	15	21	36	6	0.857142	0.142857	0.122448
48Ec8	23	12	35	7	0.833333	0.166666	0.138888

^aSum 2 = Number of mothers indicating "This is me all the time."

^bSum 1 = Number of mothers indicating "This is me some of the time."

^cSum 0 = Number of mothers indicating "This is me none of the time."

$$\Sigma p \times q = 6.100299$$

TABLE 14 Determination of variance term in the Kuder-Richardson formula 20

Inter- viewer No.	Sum 2	Sum 1	X Sum 2 + 1	X ²	Sum 0
1	17	25	42	1764	6
2	19	26	45	2025	3
3	24	15	39	1521	9
4	22	21	42	1849	5
5	11	31	42	1764	6
6	22	13	35	1225	13
7	23	12	35	1225	13
8	15	18	33	1089	15
9	12	18	30	900	18
10	23	17	40	1600	8
11	30	17	47	2209	1
12	16	28	44	1936	4
13	17	11	28	784	20
14	8	34	42	1764	6
15	12	31	43	1849	5
16	23	21	44	1936	4
17	27	4	31	961	17
18	12	30	32	1024	6
19	22	16	38	1444	10
20	21	17	38	1444	10
21	30	14	44	1936	4
22	34	14	48	2304	0
23	19	16	35	1225	13
24	10	15	25	625	23
25	13	23	36	1296	12
26	15	24	39	1521	9
27	31	10	41	1681	7
28	25	23	43	1849	0
29	34	14	48	2304	0
31	18	12	30	900	18
32	31	5	36	1296	12
33	27	13	40	1600	8
34	15	23	38	1444	10
35	30	14	44	1936	4
36	11	34	45	2025	3
37	20	22	42	1764	6
38	26	15	41	1681	7
39	14	7	21	441	27
40	14	25	39	1521	9
41	25	14	39	1521	9
42	4	33	37	1369	11
43	29	19	48	2304	0

$$\sum X_1 = 1630 \quad \sum X_1^2 = 64856$$

APPENDIX G

TABLE 15 Value test instrument results of Stillwater

Paired State- ment Number in Instrument	Statement No. Identifi- cation	Times Statement Selected	Paired State- ment Number in Instrument	Statement No. Identifi- cation	Times Statement Selected
1A	FL2	18	18A	WE1	16
B	He4	24	B	FL2	32
2A	Ed3	7	19A	Ed2	20
B	He1	35	B	He3	22
3A	Ed4	19	20A	Ec4	22
B	Ec2	23	B	He2	19
4A	Ec3	29	21A	Ed1	5
B	Fr4	13	B	Ec1	36
5A	Ec3	17	22A	WE3	9
B	He4	25	B	Ec3	32
6A	WE3	23	23A	WE3	10
B	Fr2	19	B	Fr1	32
7A	Fr2	9	24A	WE2	13
B	He3	33	B	Fr3	29
8A	Ed3	14	25A	WE2	11
B	He2	28	B	FL1	31
9A	Fr4	17	26A	Fr1	7
B	He4	25	B	FL4	35
10A	WE3	10	27A	Fr2	20
B	Ec4	32	B	He4	22
11A	FL2	27	28A	Ed4	29
B	He2	15	B	Fr1	13
12A	WE1	14	29A	WE1	10
B	FL1	28	B	Ec1	32
13A	WE3	8	30A	WE2	11
B	Ed4	34	B	FL2	30
14A	Ed4	8	31A	Ed3	12
B	FL2	34	B	Ec2	30
15A	WE2	16	32A	Fr4	12
B	He1	26	B	FL1	30
16A	WE1	16	33A	Ec4	19
B	He3	26	B	FL1	22
17A	Ed3	17	34A	WE4	30
B	He4	25	B	Ed1	12

TABLE 15 (Continued)

Paired State- ment Number in Instrument	Statement Identifi- cation	No. Times Statement Selected	Paired State- ment Number in Instrument	Statement Identifi- cation	No Times Statement Selected
35A	Ed4	15	48A	Ec4	28
B	FL1	27	B	Fr3	14
36A	Fr2	11	49A	Ed2	26
B	FL3	31	B	Fr3	16
37A	FL4	22	50A	Ec4	18
B	He3	20	B	Fr2	24
38A	WE2	26	51A	FL4	17
B	Ed1	16	B	He2	25
39A	Ed1	11	52A	WE3	30
B	Fr2	31	B	Ed1	12
40A	Ec4	27	53A	Ed2	10
B	Fr1	15	B	Ec3	32
41A	WE4	18	54A	Ec1	18
B	He2	24	B	FL2	24
42A	Fr3	11	55A	WE2	21
B	FL2	31	B	He2	20
43A	Ec1	17	56A	Ec3	15
B	He4	25	B	He3	27
44A	Ed1	16	57A	WE1	19
B	Fr4	26	B	Fr2	23
45A	Ec3	24	58A	WE2	13
B	FL3	18	B	Ec4	29
46A	Ed1	6	59A	Ec2	24
B	FL3	36	B	FL2	18
47A	Ed4	22	60A	Fr1	12
B	FL3	20	B	He3	30

VITA

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Master of Science

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