

A CULTURALLY RELEVANT FOODS AND NUTRITION
CURRICULUM VERSUS A CULTURALLY LIMITED
FOODS AND NUTRITION CURRICULUM

by

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ABSTRACT

Research indicates that foods and nutrition programs for low-income, culturally different groups may be improved through the use of culturally relevant curriculums rather than the use of those limited in or absent in cultural food practices. Two studies on the effectiveness of Anglo middle-class oriented home economics curriculums for culturally different groups revealed that such curriculums were largely ineffective. As a result, this study was proposed to test null hypotheses that there are no differences relating to mastery of cognitive and affective content by Mexican-American students enrolled in a culturally relevant foods and nutrition curriculum and in a curriculum limited in cultural food practices.

The research design involved teaching one control group by the culturally limited curriculum and three groups by the culturally relevant curriculum. Pre- and post-testing were done using the same tests for both pre- and post-test. The data was analyzed through the use of a Kruskal-Wallis one-way analysis of variance by ranks and three analyses of χ^2 . Since statistical analysis showed significant differences, the null hypotheses were rejected.

CHAPTER 1

INTRODUCTION

During the opening session of the White House Conference on Food, Nutrition and Health, President Nixon stated:

We don't know just how many Americans are actually hungry and how many suffer from malnutrition, who eat enough and who don't eat the right things. But we do know there are too many Americans in both categories.

We can argue its extent. But hunger exists.

We can argue its severity, but malnutrition exists.

The plain fact is that a great many Americans are not eating well enough to sustain health. (White House Conference on Food, Nutrition and Health 1970, p. 8)

The fact that many Americans have inadequate diets has been revealed in numerous studies (Adelson 1968; Lamb 1969; Dairy Council Digest 1970; White House Conference on Food, Nutrition and Health 1970). Mena Lamb reports, for instance, that according to the 1965 USDA survey of household consumption, only 50 percent of Americans have adequate diets as compared to 60 percent reported in the 1955 survey, and that four times as many poor diets occur at lower income levels (Lamb 1969, p. 20).

The significance of food is further identified in Nutritional Status Survey, August 1968, which states:

All the critical problems in the world center around food, clothing and shelter. Proper nutrition therefore attains a position of primary importance in the daily lives of all people. A report, "Hunger U.S.A.," released April 22, 1968 indicates some 19 million--one out of every three "poor" Americans--are suffering from chronic hunger or malnutrition (Maruna, Spendlove and Yanochik 1968, p. 1).

How does this relate to Arizona and to Pima County in particular? Using conservative estimates, the estimated number of "poor" in Arizona is 250,000, with 93,700 living in Pima County. If "Hunger U.S.A." is correct and one out of three "poor" is hungry, then 82,500 people in Arizona are suffering from hunger and malnutrition. Of this number, 31,230 are living in Pima County (Maruna et al. 1968, p.1).

Considering these and other reports, there is a great need to improve nutritional knowledge. "Nutrition education should concentrate particularly on the needs of the nutritionally disadvantaged and the more vulnerable groups, such as minority groups and youth . . . (White House Conference on Food, Nutrition and Health 1970, p. 182)." The same source continues: "The national emergency relating to hunger and malnutrition means that special attention must be given immediately to reaching children of all ethnic and economic backgrounds (p. 147)."

A cultural analysis for Arizona reveals that 37.3 percent (90,500) of the population is Mexican-American, with 54,907 residing in Pima County (Maruna et al. 1968, p. 3). Consequently, nutrition education programs designed for this minority group are exigent, particularly in Pima County.

Since marriages occur quite early among Mexican-Americans, a great need exists to reach this audience while in their youth. Unless these youths are enrolled in nutrition education programs during their junior and senior high school years, they are likely to have little food and nutrition background (Gromatzky 1968, p. 6).

To be of utmost benefit, these programs should meet the primary goal of nutrition education, which is: "To support the family culture and food practices and within this framework to give help and guidance to increase nutritive quality and to decrease costs in time, energy, and money when these are relevant (White House Conference on Food, Nutrition and Health 1970, p. 176)." Accordingly, "food patterns already established are the starting point for nutrition education (pp. 175-176)." Further studies also indicate that effectiveness of these programs, which involve Mexican-Americans, depends largely on curriculums based on felt needs or interests (Gromatzky 1968, p. 5).

To meet these goals related to socio-cultural and psychological preferences, it has been suggested that programs for Mexican-Americans be culturally relevant.

Unfortunately, many younger Mexican-Americans, educated by Anglo-oriented curriculums, have been unable to relate in a positive manner because the curriculum is so totally negative as regards their own personal and cultural background (Forbes 1970, pp. 15-16). Curricular irrelevancy in subject matter areas such as health has been recognized as a principal problem to be solved, as these curriculums having little or no connection between home and school culture effect low student interest and slow progress (Leonard and Loomis 1941, p. 53).

In this study, a culturally relevant curriculum was used to determine the effectiveness of learnings in the cognitive and affective domains.

The Problem

The purpose of the study was to compare the effectiveness of two "Basic Foods" curriculums presented to Mexican-American youth living in the inner-city of Tucson, Arizona. Curriculum A was designed to support the Mexican-American family culture and food practices. Curriculum B was limited in Mexican-American food practices.

Hypotheses

There is no difference between the quantity of low-cost nutritious foods reportedly purchased by students enrolled in five lessons taken from a culturally relevant curriculum and of the curriculum planned by the Extension Service for the Expanded Nutrition Education Program (ENEP) in Arizona.

There is no difference between the final level achieved in the affective domain by students enrolled in five lessons taken from a culturally relevant curriculum and of the curriculum planned by the Extension Service for the Expanded Nutrition Education Program in Arizona.

There is no difference between the final cognitive level achieved by students enrolled in five lessons taken from a culturally relevant curriculum and of the curriculum planned by the Extension Service for the Expanded Nutrition Education Program in Arizona.

Assumptions

1. It was possible to train ENEP leaders to be competent in methods of teaching.
2. The ENEP leaders were comparable in age and experience in working with children.

3. The sizes of the groups were small and comparable in number of students.

4. The students were comparable in age and cultural background.

5. The evaluation devices were not testing reading ability but were testing students' mastery of cognitive and affective content.

6. The test items were not ambiguous to students taking them.

Limitations

The following limitations were considered:

1. The group of students will be limited.
2. The investigator will be unable to control all variables influencing cognitive and affective gains.
3. The study will cover a relatively brief span of time.

Definitions

To facilitate interpretation of the study, the following definitions were provided:

Culturally relevant: That which has a close logical relationship with, and importance to, a given culture's fabric of ideas, ideals, beliefs, skills, tools, aesthetic objects, methods of thinking, customs, and institutions.

Disadvantaged: Used interchangeably with poor. See poor.

Inner-city: As stated in the following:

An area in the city made up of people who are denied minimal levels of health, housing facilities, food, education, and who are excluded from taking advantage of new opportunities; where overcrowding, congestion, and a concentration of multi-problem families, low income levels, minority groups, and the aged abound. The inner-city conditions are relative to the rest of the community and society. (Parsons 1971, pp. 31-32)

Low-income people: Used interchangeably with poor. See poor.

Poor: As reported by the Office of Economic Opportunity bulletin, Dimensions of Poverty in 1964 (Revised December 1965), the United States Bureau of the Census defines "poor" on the basis of the following sliding scale of income levels (p. 8):

<u>Family Size</u> <u>(Persons)</u>	<u>Annual Cash Income</u>	
	<u>(Nonfarm)</u>	<u>Farm</u>
1	\$1,540	\$1,080
2	1,990	1,390
3	2,440	1,710
4	3,130	2,190
5	3,685	2,580
6	4,135	2,895
7	4,635	3,245
8	5,135	3,595
9	5,635	3,945
10	6,135	3,295
11	6,635	4,645
12	7,135	4,995
13 or more	7,635	5,345

Self-actualization: It is one of the basic human needs--the need to become the most effective person a human being is capable of becoming with the potentialities he has (Maslow 1954, pp. 91-92).

CHAPTER 2

REVIEW OF RELATED LITERATURE

The literature on foods and nutrition education was reviewed within the framework of culturally relevant curriculums and curriculums geared for low-income groups. The effectiveness of these nutrition programs is considered to be greatly influenced by relevancy to a group's culture and economic level.

Some Elements of Successful Nutrition Education for Low-Income Groups

Today, home economists and others are concerned with programs which teach nutrition to those with low incomes, little schooling, and poor health (Burt 1970; Program Planning Conference--4-H 1970; Spitze 1969; White House Conference on Food, Nutrition and Health 1970). Many of the professionals involved in this education are asking themselves how they can be sure their efforts are effective.

According to Hazel Spitze, the effectiveness of such programs depends on the choice of objectives, content, learning experiences and their sequence, teaching methods and materials, and communication (Spitze 1969, pp. 95-102).

Maslow and others identify the fulfilling of the physiological needs as the first stage in becoming self-actualizing (Hodson 1967; Maslow 1954). A first step in nutrition programs might be to help individuals fulfill their physiological needs through the use of foods.

With relation to determining what content to teach, Spitzke says that it is the educator's job to help the learner understand established relationships so he can make sounder judgments (Spitzke 1969, p. 97). Also, the learner must see a relationship between what is being taught and his own situation (Consumer Education for Families with Limited Incomes 1971, p. 10). Before a student can master content, the need to know must be felt by the learner. Such content is important only if the learner sees it as helping to solve a problem (Spitzke 1969, p. 97).

Those concepts identified at the White House Conference on Food, Nutrition and Health as most significant to teach are:

(1) Nutrition is the food you eat and how your body uses it. (2) Food is made up of different nutrients needed for growth and health. (3) All persons have the need for the same nutrients, but in varying amounts. (4) When food is handled properly, nutritional value is preserved (White House Conference on Food, Nutrition and Health 1970, p. 151).

Harker and Kupsinel state that course content should not include teaching a nutrient value for a single

function. Also, they say that the analysis of foods for a few specific vitamins and minerals as a method of evaluating dietary intake is improper (Harker and Kupsinel 1971, p. 15).

Presently, most of the materials available for teaching nutrition are not satisfactory for those with low incomes and little schooling. They are either too difficult, preachy, dull, or biased toward the middle class. Reading materials developed for their particular reading level, which is usually third grade level, are highly recommended (Spitze 1969, p. 102).

The Expanded Nutrition Education Program

Due to the urgency for nutrition education, many organizations are implementing nutrition programs. The Cooperative Extension Service is one such group which is concerned with these programs. Extension's emphasis is on programs for teaching nutrition to the impoverished. The program the Extension Service offers is the Expanded Nutrition Education Program (ENEP).

In response to the national emergency relating to hunger and malnutrition and to the urgency for reaching youth to help alleviate this problem (White House Conference on Food, Nutrition and Health 1970, pp. 147, 182), the youth phase of ENEP is limited to nutrition education.

Considering estimates that one out of three poor Americans are hungry or suffering from malnutrition (Maruna et al. 1968, p. 1) and as many as a third of our children live in dire poverty or are haunted by its specter (Orshansky 1965, p. 14), this emphasis on nutrition education is warranted.

Then, too, the youth phase of this program was prompted by Extension's success in reaching adults through youth (Paige 1970, p. 8). Findings indicate that education is generalized within the family and that what children learn in 4-H Clubs and in school is carried home and can influence parents (Meyers 1970, p. 383).

The role of Extension in this phase includes the development of a special curriculum by a nutrition specialist. It also involves the training of professional extension assistants by a professional home economist. These trained assistants then recruit and train volunteer leaders, who in turn teach the 4-H groups.

ENEP in Tucson, Arizona focuses on the inner-city area in reaching low-income youth. From February through June, 1970, 559 youth contacts were made in Pima County. Ages ranged from five to twenty, with the largest number ranging in ages from nine to twelve. Of 308 youths responding to a questionnaire, 26 were Anglo, 11 Indian, 198 Mexican-American, 56 Negro, and two Oriental; 15 did

not respond. Of those responding, about half received commodity foods and welfare benefits (Statistics of Youth Enrolled in Pima County ENEP 1970, p. 3).

According to statistics from February through June 1970, there were four male and 39 female volunteer leaders for these 4-H programs in Pima County. Of these, 24 were youths and 19 were adults. Living within the target area were 26 leaders, and living outside this target area were 17 leaders (Statistics of Youth Enrolled in Pima County ENEP 1970, p. 2). Leaders are generally trained on an individual basis, with some being trained in small groups. Little preparation is involved on the part of the leaders, as the Extension Assistants provide all materials and foods for the lessons.

This youth program meets many of the requirements for effective nutrition education. Its over-all objectives closely relate to those which Spitzke suggests (1969, pp. 96-97). These objectives are as follows:

(1) To provide education for youth in the principles of nutrition, diets, and in the acquisition and use of foods. (2) To contribute to the personal development of disadvantaged urban youth through improved nutrition. (3) To contribute to the improvement of diets and nutrition of families by means of education programs for youth (Program Planning Conference--4-H 1970, p. 4).

The content of this program includes the four basic relationships of nutrition which Spitzke and others suggest

should be taught (Spitze 1969; White House Conference on Food, Nutrition and Health 1970). Also, course content does not tend to include teaching the value of a nutrient for a single function. Content relating to the Milk Group, however, includes but one function of calcium, which is to help build strong bones and teeth. No material regarding the other nutrients needed for this particular function is included. Most often, though, content follows Harker's and Kupsinel's suggestion of not teaching the value of a nutrient for a single function (Burt 1970).

Economic and physiological factors which influence food choices are a major consideration in the content of this program. For example, subject matter takes into account the serving of nutritious food at a low cost, with inadequate equipment for storage, preparation, and serving food (Burt 1970).

To some extent, cultural and psychological factors affecting food choices are a consideration in this content. For instance, content provides for a choice of food preparations, ranging from a choice of two to a choice of nine. Most food preparations suggested are familiar to Anglos. With respect to familiar food preparations for Mexican-Americans, however, less than one percent of those included in the entire set of lessons is culturally relevant.

Since culturally relevant food preparations are limited for Mexican-Americans, learning experiences for this audience rarely coincide with food patterns already established.

Teaching materials include visual aids and member handouts which are on a low reading level (Burt 1970).

The Need for Culturally Relevant Curriculums

Until recently, the emphasis in American education has been placed upon curriculum geared to the requirements of the Anglo middle-class society. More and more, however, educators have begun to realize that programs which meet the requirements of this group do not necessarily satisfy the needs of other cultural groups. Studies and reports strongly indicate the need for re-examination of curriculums and construction of culturally relevant programs (Carter 1969; Consumer Education for Families with Limited Incomes 1971; Forbes 1970; Gromatzky 1968; Leonard and Loomis 1941; McGinty 1964; Ortego 1971; Saunders 1966; Spitze 1969; White House Conference on Food, Nutrition and Health 1970; Wilson 1968).

The Mexican-American is a major ethnic group in Arizona, which presently commands the special attention of educators. Arizona's population is 37.3 percent (90,500)

Mexican-American. Of these, 54,907 live in Pima County, with a large percentage residing in Tucson (Maruna et al. 1968, p. 3).

The educational statistics on Mexican-Americans show their dropout rate is more than two times the national average, and estimates of the average number of school years completed by Mexican-Americans (7.1 years) are significantly below figures for black children (9.0 years) or Anglo children (12.1 years). Also, the percentage of Mexican-American children classified with inferior IQs is two and a half times their ratio to the general population (Ortego 1971, p. 63).

Although many blame this lack of educational attainment characteristic of low-income groups on anti-intellectualism and on a lack of emphasis on education in the home (Herzog 1966; Kassarian and Robertson 1968; Langner and Michael 1963), the author and others disagree with this contention. For instance, Ortego points out that a 1968 study by James Anderson and Dwight Johnson shows that there is little difference in the amount of emphasis Mexican-American families and other families place on education in the home. Moreover, Mexican-Americans experience the same high degree of encouragement and assistance at home as their classmates do. "The inescapable conclusion is that the academic failures of

many Mexican-American youngsters are the result of inadequate school programs rather than the consequence of low achievement or aspiration levels of their families (Ortego 1971, p. 63)."

Furthermore, Wilson notes that even though Mexican-American and Anglo children tend to start out much on the same level, both in IQ scores and scholastic achievement, Mexican-Americans decline in performance and measured ability the longer they stay in school. Part of the reason for this decline is that curriculum does not tend to facilitate transition from the Mexican home to the American school (Wilson 1968, p. 8). Due to such conditions within schools that inhibit academic achievement and encourage early dropout by Mexican-Americans, Carter suggests that curriculums be substantially modified (Carter 1969, p. 5).

Studies in Nutrition Education Related to Culturally Relevant Curriculums

While there were literature and research on the subject of culturally relevant nutrition programs, much of it dealt with the urgency for such curriculums and with suggestions for constructing and implementing these curriculums (Consumer Education for Families with Limited Incomes 1971; Forbes 1970; Gromatzky 1968; Lamb 1969; Leonard and Loomis 1941; Spitze 1969; White House

Conference on Food, Nutrition and Health 1970). Two studies on culturally relevant curriculums per se in the area of foods and nutrition were located.

McGinty's study was conducted to determine to what extent the Anglo middle class-oriented home economics curriculum as experienced was meeting the needs of young Papago homemakers. Findings revealed that a culturally irrelevant home economics curriculum does not fully and adequately meet the needs of this ethnic group (McGinty 1964, p. 175). Knowledge gained in foods and nutrition classes was not implemented by most of these homemakers to any great extent (pp. 150-171). These homemakers expressed a desire to prepare more economical recipes, including foods familiar to them and products easily obtainable in their localities. Some stated that they had not prepared a number of the recipes they had learned to make in school because older relatives living in the household did not like or would not eat the foods. Several said they would like to have prepared more of their native dishes in class (pp. 165-166). Although this study applies to programs involving Papagos, the findings are suggestive to programs for other ethnic and minority groups (p. 175).

With respect to nutrition education for Mexican-Americans, Carter notes that Anglo middle-class curriculums

confuse Mexican-Americans. His research involved observations of nutrition classes and teacher interviews. To illustrate, an Anglo home economics teacher was observed explaining a well-balanced meal to Mexican-Americans. The students were confounded by the fact that the menu included a "hot" and a "cold" food. They had been taught at home that such a practice would produce empacho (a digestive upset). When questioned about this, the teacher replied with an "I never heard such superstitious nonsense" argument. To emphasize proper dinner service and table manners, another home economics teacher remarked that "a person just can't eat with a tortilla among nice people." Such curriculums that fail to recognize cultural food patterns and practices create conflicts which reinforce academic failure (Carter 1970, p. 110).

Culturally Relevant Foods and Nutrition
Curriculum for Low-Income Mexican-
Americans in Tucson, Arizona

Ralph Tyler's "Curricular Rationale" provides a means of validating the objectives of any curriculum. According to Tyler, objectives are based on three important sources: the student, society, and the subject (1969).

In considering the student, abundant literature and research listing distinctive characteristics of Mexican-Americans were disregarded. The reason for this is that no

wide-spread empirical study indicates that a monolithic or static Mexican-American culture exists. Instead, every indication is that this culture varies by geographic area and within a given geographic area. Only two cultural items appear even close to being universal. These are that Mexican-Americans tend to speak Spanish and tend to be Roman Catholics (Carter 1969, p. 12).

Instead, characteristics of low-income Mexican-Americans living in Tucson, Arizona, as researched by Getty, were used as criteria for this curriculum development. According to Getty (1949), some Mexican-American characteristics are as follows:

Religion: Nearly 100 percent Roman Catholic (p. 92).

Language: Spanish-speaking; English often spoken with Spanish accent (p. 96).

Family Relationships: Kin group important; clannishness; common-law marriages; extended family characteristics of most, but for some immigration from Sonora broke up extended families which have not been re-established in Arizona (p. 91).

Housing and Living Conditions: Lack of household appliances; dirt floors in many homes; poor exterior appearance of houses; lack of sanitation facilities; flowers, altars, and many large photographs in living room; beds in living room; bedroom(s) between living room and

kitchen; houses made of adobe and sometimes covered with plaster; lack of plumbing (p. 96); "apartments" similar to those seen in Mexico, which are located in the part of town along Main, Meyer, and Convent Streets, and on the cross-streets from Broadway to 18th Street (p. 208).

Getty describes these "apartments" as follows:

The buildings form a solid front on the street with one door and one window to each apartment. Each apartment consists of three rooms in a line. The door opens into a living room, which usually has a bed or other sleeping arrangement, perhaps a small table, a small radio or phonograph and a profusion of family pictures. There may be a small altar arrangement in this room or the next one. The next room is a bedroom. And from that one goes into the backroom which is a combination kitchen and dining room. Back of that is a patio which serves all the apartments in that particular unit. In the patio areas are the wells, the toilets--seldom more than one for six apartments--the woodpiles, the tubs and firepits for boiling clothes, and the clotheslines. Warm weather sleeping is done in these patio areas (1949, pp. 208-209).

Place of Origin: Largest number from Sonora; second largest number from Chihuahua (p. 134).

Cultural Foods: Beans and tortillas, plus dishes made from cornmeal, such as tamales, enchiladas, and tacos (p. 91).

Economic Roles: Furnish the bulk of Tucson's labor force; most are skilled and semi-skilled laborers; a minimum are in professional and business areas (p. 153).

Interests: Prefer Mexican-type music (p. 96).

Values: Happiness, not ambition; "living today" (p.96).

Dress: Dress less well than Anglos in school (p. 96). Even though the preceding description of low-income Mexican-Americans in Tucson was researched in 1949, the author contends, because of personal experience and observation, that many are still characteristic today. Various studies, however, point to a new trend in values developing among these youths. These studies suggest that many are realizing the ambitions of Anglo youth in attaining the American dream. There are indications that they are going to assume leadership and responsibility for improving their communities (Gromatzky 1968, p. 6).

The second important source Tyler (1969) identifies in developing objectives is the society. In one definition of the word, "society" means a group of persons living together under the same environment and regarded as forming a single community (Webster's New World Dictionary of the American Language 1962, p. 1384). With respect to this definition, the particular segment of society in which the aforementioned students live is quite different from the usual concept of the present American society. In contrast to the great, affluent American society, this society is characterized by poverty.

Two major contributory conditions to their society's situation are relevant to the derivation of meaningful objectives. These are as follows:

1. Creativity and initiative is squeezed out of the poor by inadequate education and teachers who expect them to fail.

2. Being moneyless isolates the poor physically and psychologically from the main-stream of society, making it difficult for them to fit into the majority's way of life. (Johnson 1970, pp. 6-7)

The needs of the people in this impoverished society are basically physiological needs.

What this means specifically is that in the human being who is missing everything in life in an extreme fashion, it is most likely that the major motivation would be the physiological needs rather than any others. A person who is lacking food, safety, love, and esteem would most probably hunger for food more strongly than for anything else (Maslow 1943, p. 371).

In short, this segment of society living in poverty in Tucson's inner-city has special problems and needs which were considered in developing objectives.

The third source Tyler (1969) suggests as a basis for decisions about objectives is the subject. The field in which the content of this curriculum lies is the field of Home Economics; therefore, the ultimate purpose of Home Economics education was considered. This purpose is the development through education for home and family living of persons striving for self-actualizing who function effectively as persons, family members, workers, and citizens (Knorr 1967, pp. 12-14).

Next, subject matter content in the area of foods and nutrition was considered. Previously discussed elements of effective nutrition education for low-income people, together with suggestions for developing culturally relevant curriculums, were considered.

Summary

Research indicates a need for nutrition programs which are relevant to a group's culture and economic level. The Expanded Nutrition Education Program offered by the Extension Service meets the requirements for nutrition education for low-income groups, but it is culturally limited with respect to the Mexican-American culture. As research further indicates that academic failures of Mexican-Americans are due in part to culturally irrelevant curriculums, a culturally relevant foods and nutrition curriculum was adapted from the Extension Service's curriculum.

CHAPTER 3

PROCEDURES

In this study, two curriculums in foods and nutrition were compared to see if there was a difference between the two in the level of mastery by students of cognitive and affective content. Curriculum A was designed to support the Mexican-American family culture and food practices. Curriculum B, developed by the Extension Service for the Expanded Nutrition Education Program, was limited in Mexican-American food practices.

Population

Volunteer students in four groups of the Extension Service's Expanded Nutrition Education Program were the subjects in the study. These students were Spanish-speaking boys and girls who reside in the inner-city of Tucson, Arizona.

Experimental Design

The study lasted four weeks, in which time the investigator trained volunteer ENEP leaders to teach the groups. These leaders were trained on an individual basis prior to each lesson.

The leaders were Mexican-American women who lived in the neighborhoods in which they taught. Indigenous leaders were chosen for this study because findings showed that such leadership was essential to inner-city youth programs. As these leaders lived in the neighborhoods in which they were teaching, they could keep the program attuned to local needs and interests (Parsons 1971, p. 34).

The curriculum developed by the Extension Service was taught to one group. Three groups received instruction from the culturally relevant curriculum. Each group had from 10 to 13 members enrolled.

Group meetings were held in schools within the students' and leaders' neighborhoods. Two groups met at Safford Junior High School, and two groups met at Richey Elementary School.

The students met twice a week for three weeks and once during the fourth week.

The researcher was in attendance at all group meetings in order to insure consistency in class instruction.

Testing procedures included pre- and post-testing. The students were given half of the pretests at the first class meeting. The remainder of the pretests were taken at the second class meeting. During the seventh class meeting students took the post-tests.

The evaluation devices used in pre- and post-testing were constructed in the form of games, as such games make learning enjoyable to the learner (Spitze 1969, pp. 98-99). Since Mexican-Americans suffer educational setbacks because of their language barrier (Ortego 1971, p. 64), these devices were largely pictorial. For example, one device illustrated foods which some students may not have been able to identify in English terms. The evaluation devices are found in Appendixes A, B, C, and D.

To determine conceptual mastery for each lesson, another evaluation device was completed by students immediately following each lesson. See Appendix E.

In addition, the Extension Service provided for program evaluation. Prior to the first lesson, students filled out a "24-Hour Recall Sheet," on which they listed all foods eaten in the past 24 hours. At the last meeting they again filled out these recall sheets. Extension uses such information to tabulate the percentages of dietary intake in order to note changes in food habits.

The pre- and post-testing devices, as well as the Extension Service's program evaluation, were in accordance with suggestions for effective nutrition education. These suggestions include some measure of objectives prior to the program and then at the end of the program (Spitze 1969, pp. 96-97).

Both curriculums presented met another important element of effective nutrition education. As people tend to repeat experiences which are pleasant and enjoyable, Spitze recommends that this principle be capitalized upon in learning situations (1969, pp. 98-99). Since food is pleasant and can be enjoyable, both curriculums took advantage of this principle by providing for the preparation and consumption of food during each lesson.

The culturally relevant curriculum also met several other requirements of effective nutrition education. For one, it followed guidelines for sequencing learning experiences. Spitze suggests, for instance, that a learner's experiences start "where he is," not "where the teacher is" (1969, p. 101). In view of Spitze's suggestion and recommendations from others that nutrition education begin with food patterns already established (White House Conference on Food, Nutrition and Health 1970, pp. 175-176), this curriculum provided for the preparation of Mexican dishes using cultural foods.

Then, too, this preparation of Mexican foods during the learning experiences took into account another element of effective nutrition education related to food dislikes. According to Lamb, numerous research reports indicate that food dislikes are associated with unknown and unfamiliar foods, and that a fear of the unknown causes

rejection (1969, p. 20). Consequently, learning experiences which develop food habits coinciding with wants and nutritional needs are desirable (Lamb 1969; White House Conference on Food, Nutrition and Health 1970).

The culturally relevant curriculum was in accordance with the major emphasis in nutrition education for low-income groups. This emphasis is on relevance, due to the fact that the largest difference between low-income students and others lies in the meanings things hold for the poor and the degree to which certain factors are operable (Consumer Education for Families with Limited Incomes 1971, p. 14). For example:

Although all learners proceed from learning about things which are familiar to those which are not familiar, there may be differences in what is familiar to disadvantaged students. Table setting might be very familiar to the middle-class learner, but to the students living in families without enough pieces of silverware to go around, it may be quite unfamiliar (Consumer Education for Families with Limited Incomes 1971, p. 15).

In light of this emphasis on relevancy and Ortego's view on language handicap (1971, p. 64), the culturally relevant curriculum included reading materials in Spanish and visual aids picturing cultural foods.

The concepts to be mastered from both curriculums were in the cognitive and affective domains.

Class Instruction

Curriculum B was taught according to the ENEP Leader Guides developed by the Extension Service (Burt 1970). An example of a lesson is presented in Appendix F. Curriculum A was adapted from the Extension's curriculum. An example of a lesson is presented in Appendix G.

Data Collection and Analysis

Sources of data and statistical technique employed in the testing of the hypotheses are shown in Table 1.

The following procedures for scoring evaluation devices were used for the calculation of the means: (a) The Low-Cost Nutritious Foods Q-Sort was scored by giving subjects these points for the five different responses: "more than 1 time a week," 4 points; "1 time a week," 3 points; "1 or 2 times a month," 2 points; "seldom," 1 point; and "never," 0 points. (b) The Snack Selection was scored by giving subjects 10 points for choosing either the lemon with saladitos (dried salted prunes), the apple, or the raisins. No points were given for the other three choices. (c) Food Bingo was scored by giving subjects one point for each correct response, of which there were nine. (d) The Nutritional Card Sort was scored by using a slide rule developed for judging purposes.

Table 1
 Statistical Techniques and Sources of Data
 Used in the Testing of the
 Experimental Hypotheses

Hypothesis	Source of Data	Statistical Test
I.	Low-Cost Nutri- tious Foods Q-Sort	χ^2
	Lesson Evaluation	Descriptive
II.	Snack Selection	χ^2
III.	Food Bingo	χ^2
	Nutritional Card Sort	Kruskal-Wallis one-way analy- sis of variance by ranks

This method took into account the degree of difference among the possible placements of foods. The highest possible score was 50.

All evaluation devices were returned to the researcher for tabulation of statistics.

CHAPTER 4

PRESENTATION OF DATA

The findings of this study were obtained from three analyses of χ^2 and a Kruskal-Wallis one-way analysis of variance by ranks. One finding was supported by description. A culturally relevant curriculum and a curriculum limited in cultural food practices were compared to see if students could master cognitive and affective content more often when taught by the culturally relevant curriculum than when taught by the curriculum limited in cultural food practices.

Population

Volunteer students in four groups of the Extension Service's Expanded Nutrition Education Program were the subjects in the study. These students were Spanish-speaking boys and girls who reside in the inner-city of Tucson, Arizona. Twelve of the students were boys and 19 were girls. Their ages ranged from nine to 14 years. The economic background of the students varied little. A few were children of business and professional people, while most were from families receiving welfare benefits and food stamps. Of the 31 subjects, four were Yaquis (an

Indian tribe from Mexico) and the remainder were Mexican-Americans. Since the Yaquis emigrated from Sonora, Mexico, as did the Mexican-Americans, their cultural food patterns are quite similar.

Findings in Relation to Hypotheses

Hypothesis I

There is no difference between the quantity of low-cost, nutritious foods reportedly purchased by students enrolled in five lessons taken from a culturally relevant curriculum and of the curriculum planned by the Extension Service for the Expanded Nutrition Education Program in Arizona.

The χ^2 statistical test was utilized in the analysis of scores necessary to support or reject this hypothesis. Table 2 presents data on the means of the pre- and post-tests for the four groups. The decision rule was to reject the null hypothesis if χ^2 was greater than 21.026 at the .05 level of significance (df = 12). The χ^2 value for the pretests was 20.9406; therefore, no significant difference between the groups existed prior to class instruction. The χ^2 value for the post-tests was 26.886. Consequently, there was a significant difference between the amount of low-cost, nutritious foods reportedly

Table 2
Means of the Criterion for Four Experimental
Groups--Hypothesis I

Curriculum	n	Mean of Post-test	Mean of Pretest
Culturally Relevant			
Group A	8	62.625	56.25
Group B	7	59.571	56.429
Group C	8	61.0	54.75
Extension Service			
Group D	8	50.625	50.5

purchased by students enrolled in the culturally relevant curriculum and the curriculum developed by the Extension Service.

This significance is additionally supported by findings from the Lesson Evaluation devices. On these devices students listed low-cost, nutritious foods that they or family members prepared at home as a result of class instruction. See Figure 1 for the frequency of preparations. As these foods had to be purchased in order to prepare the recipes, the logical conclusion was that purchase did increase. The null hypothesis was thus rejected.

Hypothesis II

There is no difference between the final level achieved in the affective domain by students enrolled in five lessons taken from a culturally relevant curriculum and of the curriculum planned by the Extension Service for the Expanded Nutrition Education Program in Arizona.

In order to support or reject this hypothesis, the χ^2 test statistic was used in analysis of data. First and second choices of snacks were the data used in the analysis of the means for the pre- and post-tests. See Table 3 for this information about the four groups. The decision rule was to reject the null if χ^2 was greater than 24.996

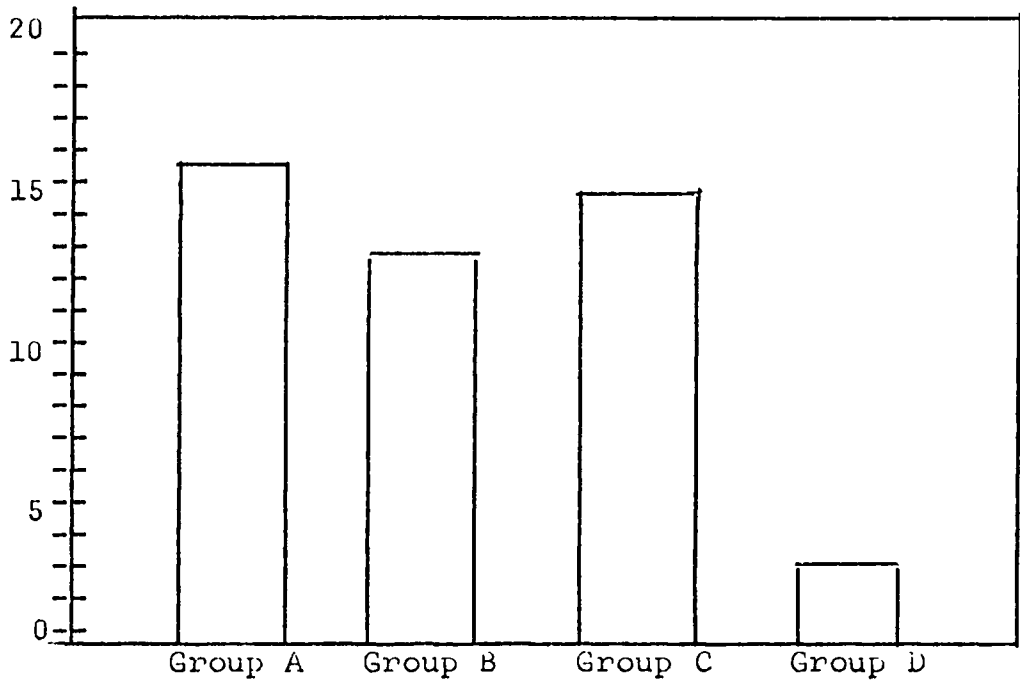


Fig. 1. A bar chart of the frequency of low-cost, nutritious food preparations.

Groups A, B, and C were taught by the culturally relevant curriculum and Group D was taught by the curriculum developed by the Extension Service.

Table 3

Means of the Criterion for Four Experimental
Groups--Hypothesis II

Curriculum	n	Mean of Post-test		Mean of Pretest	
		First	Second	First	Second
Culturally Relevant					
Group A	8	10.0	10.0	10.0	0
Group B	7	10.0	7.142	10.0	2.858
Group C	8	7.5	8.75	3.75	5.0
Extension Service					
Group D	8	7.5	2.858	7.5	5.0

at the .05 level of significance ($df = 15$) for either or both data on first and second choices.

The analysis of the first choice of snacks showed the χ^2 value of the pretests to be 13.4692 and the value of the post-tests to be 11.5872. Thus, there was no difference in the first choice for either the pre- or the post-tests. An ocular view of this particular data revealed a very significant finding, however. The pretests showed 77 percent of the subjects selected the lemon with saladitos for their first choice, and the post-tests revealed that 81 percent picked this snack for their first choice. As this snack is a cultural food of these subjects, apparently the students preferred their cultural foods to the foods of the dominant society.

The analysis of the second choice of snacks showed the χ^2 value for the pretests to be 16.4614. There was no significant difference, then, between the groups prior to instruction with regard to choices excluding cultural preferences. The χ^2 value for the post-tests was 25.7712. There was a significant difference between groups in the final level achieved in the affective domain. Thus, the null hypothesis was rejected.

Hypothesis III

There is no difference between the final cognitive level achieved by students enrolled in five lessons taken from a culturally relevant curriculum and of the curriculum planned by the Extension Service for the Expanded Nutrition Education Program in Arizona.

The χ^2 statistical test and the Kruskal-Wallis one-way analysis of variance by ranks were both employed in the analysis of scores necessary to support or reject this hypothesis. Table 4 presents data on the means for the pre- and post-tests for the Food Bingo device, while Table 5 presents such data for the Nutritional Card Sort device. The decision rule was to reject the null hypothesis if either or both of the statistical tests showed values greater than 7.815 at the .05 level of significance (df = 3).

The χ^2 statistical technique was used to analyze the data obtained from the Food Bingo device. As the value of χ^2 for the pretests was 4.8703, no difference between groups was evident in the cognitive domain prior to the presentation of the curriculums. Analysis of the post-tests revealed a χ^2 value of 8.116. Therefore, there was a significant difference between groups in the final cognitive level achieved.

Table 4

Means of the Criterion for Four Experimental Groups for the Food Bingo Device, Hypothesis III

Curriculum	n	Mean of Post-test	Mean of Pretest
Culturally Relevant			
Group A	8	4.625	2.85
Group B	7	4.0	2.0
Group C	8	4.125	1.5
Extension Service			
Group D	8	2.75	2.0

Table 5

Means of the Criterion for Four Experimental Groups for the Nutritional Card Sort Device, Hypothesis III

Curriculum	n	Mean of Post-test	Mean of Pretest
Culturally Relevant			
Group A	8	38.25	27.75
Group B	7	35.857	27.714
Group C	8	37.375	28.875
Extension Service			
Group D	8	33.75	25.625

To analyze data obtained from the Nutritional Card Sort device, the Kruskal-Wallis one-way analysis of variance by ranks was utilized. Findings showed the value for H to be 7.912. Consequently, there was a difference between the final cognitive level achieved by students enrolled in lessons taken from a culturally relevant curriculum and the curriculum planned by the Extension Service. The null hypothesis, therefore, was rejected.

Additional Findings

An ocular view of the Lesson Evaluation devices, which students completed at the close of each lesson, revealed that all the students enrolled in the culturally relevant curriculum enjoyed preparing and eating all the foods prepared. All of the students enrolled in the culturally limited curriculum indicated a strong dislike for the Fruit Milk Ade drink. Half of these students had a mild dislike for the Cabbage Slaw.

Analysis

The findings of this study did exceed the .05 level of significance for all three hypotheses; therefore, the null hypotheses could be rejected. With consideration to the evaluation devices used and the particular population, it did make a significant difference in whether Mexican-American students were taught by a culturally relevant

foods and nutrition curriculum or by one limited in their cultural food practices.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Research indicates that when Mexican-American students are taught by a culturally relevant foods and nutrition curriculum rather than one limited in cultural food practices, they are better able to master cognitive and affective content. This study was proposed to test the null hypotheses that there are no differences relating to affective and cognitive gains between groups taught by the two different curriculums.

Conclusions

Since statistical analysis showed significant differences in mastery of content relating to the affective and cognitive domains, it appears that a culturally relevant foods and nutrition curriculum is more effective for Mexican-Americans than one limited in cultural food practices.

Research done with groups whose cultures differ from the Anglo middle-class society's culture indicates that two major factors may have had an effect on the results of the study. The principal factor affecting the results of this study was most likely the difference in cultural

relevancy of the two curriculums. For instance, McGinty, in her study with Papago homemakers, reported that a culturally irrelevant home economics curriculum does not fully and adequately meet the needs of this ethnic group (1964, p. 175). As a result, knowledge gained in foods and nutrition classes was not implemented by most students to any great extent (pp. 150-171). Thus, there is an indication that the relevancy built into the culturally relevant curriculum had an effect on the mastery of cognitive and affective content, as well as on the implementation of this knowledge, as revealed by the rejection of Hypothesis I.

In accordance, the use of different teaching materials may have been a second factor influencing results of the study. The teaching materials used as part of the Extension Service's curriculum were largely unrelated to the Mexican-American culture. The culturally relevant curriculum, however, provided for visuals depicting cultural foods in order to facilitate understanding. Students enrolled in the culturally relevant curriculum also received reading materials in Spanish as well as in English. Since Mexican-Americans suffer educational setbacks because of their language barrier (Ortego 1971, p. 64), these teaching materials may have had an effect on the

significantly higher gains made by students enrolled in the culturally relevant curriculum.

Recommendations for Future Studies

From the analysis of the data collected, the suggestions and recommendations which follow seem appropriate. The recommendations, as stated, apply only to foods and nutrition programs. These recommendations, however, may be suggestive to other educators in their planning of programs for culturally different groups.

1. Since Mexican-American students taught by the culturally limited curriculum showed small gains and little implementation of information offered in class instruction, it is recommended that schools and other agencies offering foods and nutrition programs evaluate this area of instruction to determine whether or not suitable learning opportunities are being offered to Mexican-American students. Furthermore, the amount of time given to instruction in this area may need to be increased in order to encourage greater implementation.

2. It is recommended that a study be made of teacher attitude toward local school in-service training programs and teacher education institutions giving added emphasis to the teaching of foods and nutrition to various ethnic groups.

3. It is recommended that other culturally relevant foods and nutrition curriculums for Mexican-Americans and other ethnic groups of the state be developed and tested for significance.

4. The evaluation devices used in this study were constructed with the main objective being to develop devices which would make learning enjoyable. As a result, many of the properties necessary for parametric analysis were lost. It is therefore recommended that devices for similar studies meet requirements for parametric procedures in order to obtain more sophisticated statistical analysis.

5. It is recommended that similar studies use a larger population and present the curriculums over a longer period of time, thus facilitating the use of parametric analysis.

6. It is recommended that similar studies provide for the retesting of students one year after the completion of the classes to determine if there was a difference in retention between those taught by the culturally relevant curriculum and the culturally limited curriculum.

7. This study provided evidence that Mexican-Americans made greater gains in their initial experience when exposed to a culturally relevant foods and nutrition

curriculum. It is recommended that future studies be carried out to determine the extent which a broader curriculum would relate to more advanced learning outcomes.

APPENDIX A

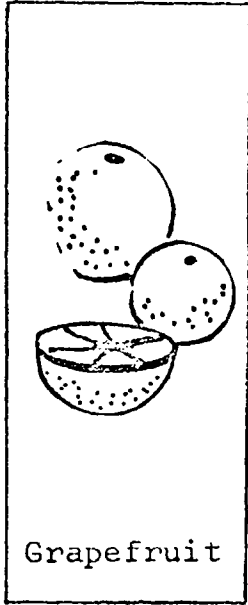
LOW-COST NUTRITIOUS FOODS Q-SORT

Q-Sort cards were constructed with slots labeled "never," "seldom" (several times a year), "1 or 2 times a month," "1 time a week," and "more than 1 time a week." The directions were on each card.

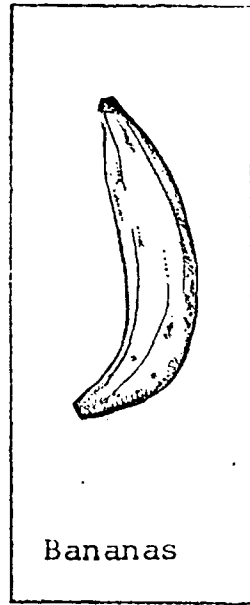
The foods inserted in the appropriate slots are illustrated herein.

Directions

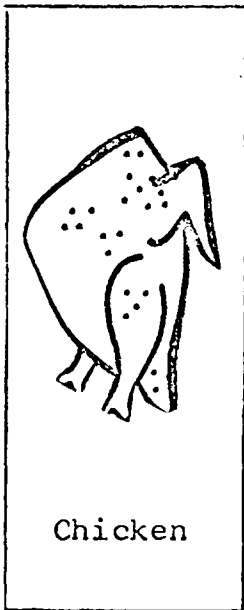
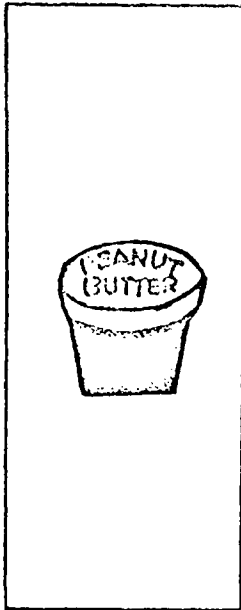
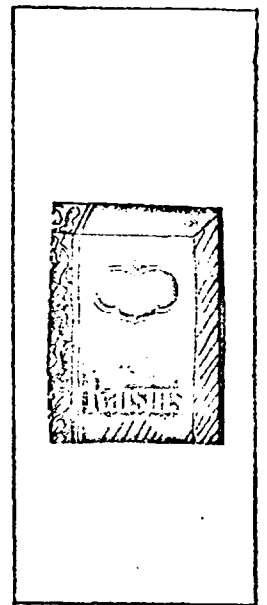
Take each card with the name and picture of a food on it and put it in the slot which tells how often your family buys it.



Grapefruit



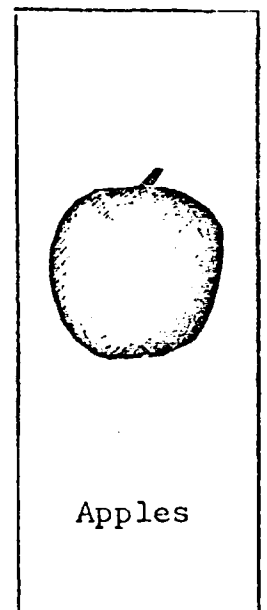
Bananas



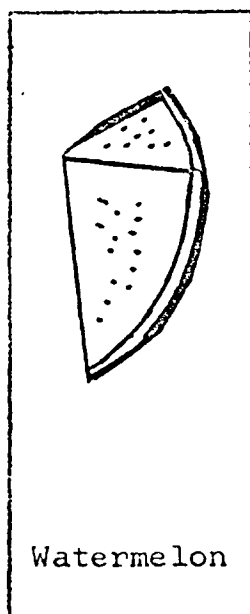
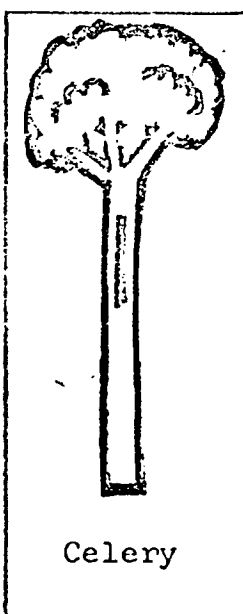
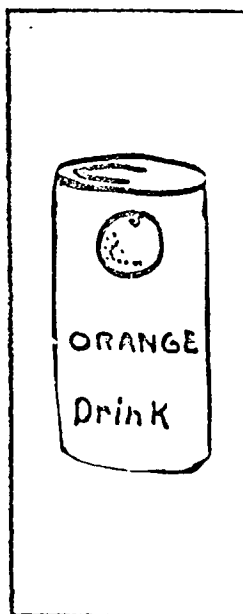
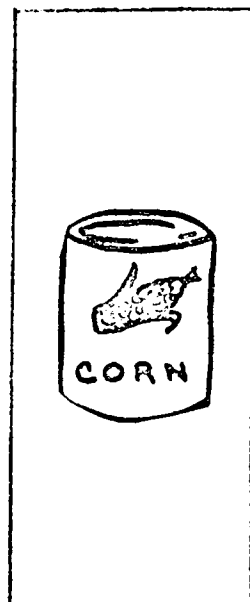
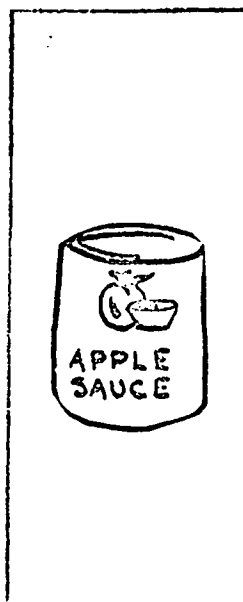
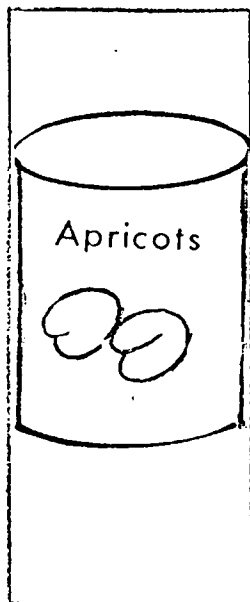
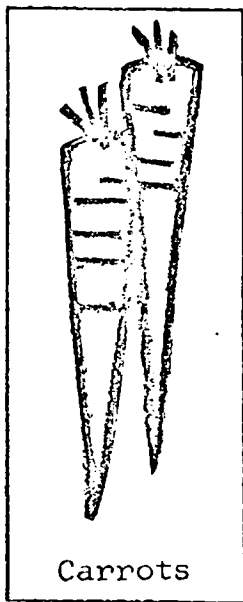
Chicken

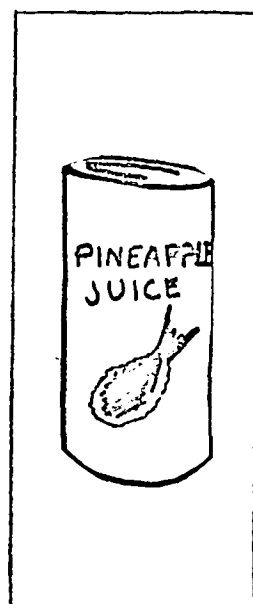
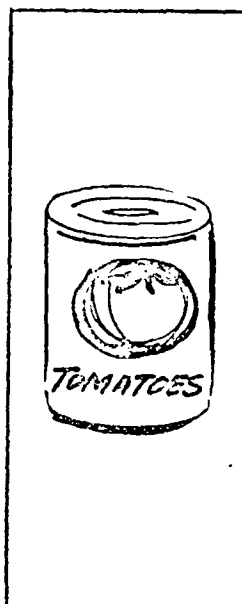
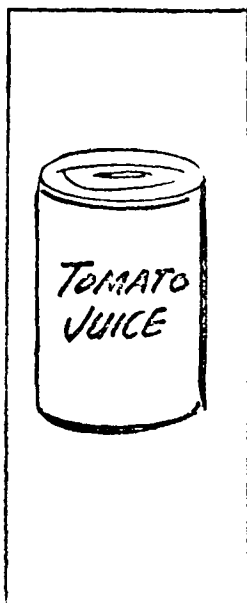


Chorizo
(Mexican
sausage)

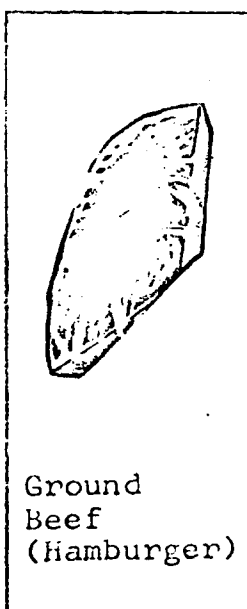


Apples

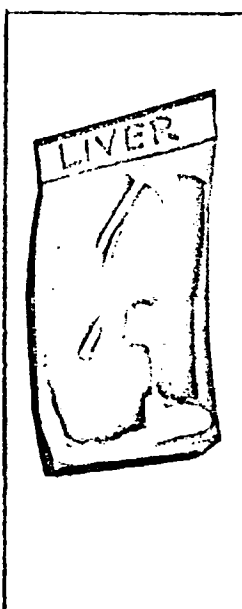


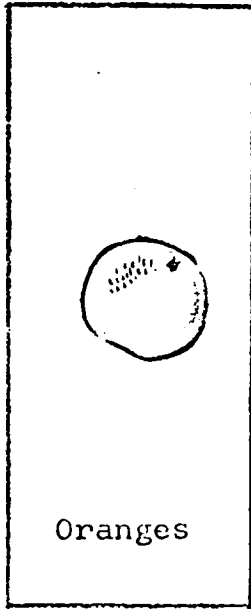


Fresh Spinach

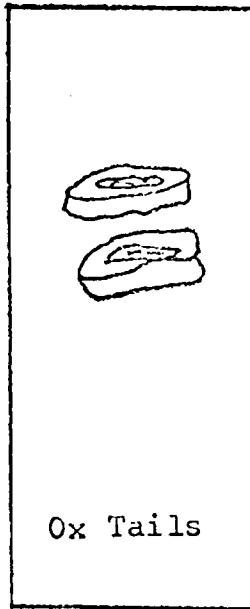


Ground Beef
(Hamburger)

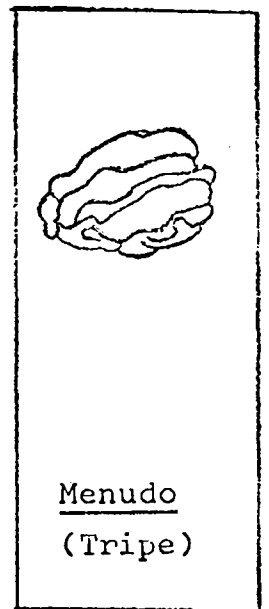




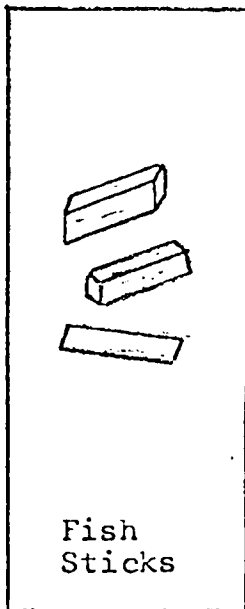
Oranges



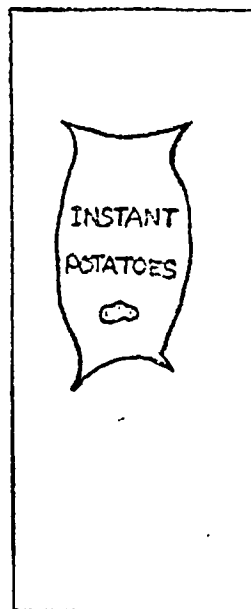
Ox Tails



Menudo
(Tripe)



Fish
Sticks



APPENDIX B

SNACK SELECTION

Snacks including potato chips, popcorn, raisins, a lemon with saladitos, a candy bar, and an apple were placed before the students. In front of each snack were cards titled with the corresponding name of the snack. An example of one such card is illustrated herein.

Directions (Verbal)

Select the card in front of the snack you want.

At the next class meeting, you will be given the snack chosen.

Fill out the requested information on the cards and turn in the completed cards.

Sample Card

APPLE

Your name _____

I chose this snack because _____

In the spaces below, number your second, third, fourth, fifth, and sixth choices. Tell how they help your body.

_____ Potato chips help my body by _____

_____ Popcorn helps my body by _____

_____ Lemons with saladitos help my body by _____

_____ Candy bars help my body by _____

_____ Raisins help my body by _____

APPENDIX C

FOOD BINGO

Students were given pencils, beans, Food Bingo cards, and printed instructions. The ENEP leader read the directions aloud while the students followed along. Questions concerning the process of the game were answered.

Examples of a Food Bingo card and a list of definitions used in the game are presented herein.

Directions

Before you is your Food Bingo card with the names of nutrients in the squares. As your leader gives definitions of the nutrients, she will write the number of the definition on the board. Write the number of the definition in the square associated with that definition. Also put a bean in that square. When a straight line of beans is formed in any direction, call out, "Food Bingo!"

Note: Even after the first person gets "Food Bingo," we will continue with the same until all the definitions have been read and everyone has had a chance to fill up his card.

The center square labeled "Basic Four" will be a free square. This will be used to illustrate the process of the game. Each definition read may be used once or not at all.

Food Bingo Card

Vitamin C	Iron	Vitamin D
B-Vitamins	Basic Four	Protein
Calcium	Vitamin A	Carbohydrates

Definitions

After directions are clear, the leader helps illustrate the process of the game by using the "Basic Four" square as a free square.

1. Example: Teacher writes the number one (1) on the board. She reads definitions: This is a guide to help you select foods for better nutrition. This guide includes the "Milk Group," the "Vegetable-Fruit Group," the "Meat Group," and the "Bread-Cereal Group."

Teacher instructs students to write number 1 in the "Basic Four" square, and to place a bean in that square.

2. This works to build and repair the body. Foods high in this are: meat, poultry, fish, eggs, beans, and peas. (PROTEIN)
3. This helps the red blood cells to carry oxygen to other body cells. Without enough of this, you feel tired and run-down. Good sources of this are: lean meats, liver, dark green leafy vegetables, and whole or enriched grain foods. (IRON)
4. This helps prevent simple goiters by helping the thyroid gland produce a hormone needed to help your body use energy. Sea foods are very high in this. (IODINE)
5. This is needed for growth and helps you see in the dark. It also helps keep the lining in the mouth in good condition. Foods high in this are: dark green leafy vegetables and deep yellow vegetables, and milk and cheese. (VITAMIN A)
6. This helps to build strong bones and teeth. Helps muscles work and nerves carry messages. Foods high in this are: all kinds of milk, cheese, and dark green leafy vegetables. (CALCIUM)
7. This helps the body absorb more calcium and phosphorus and also helps to prevent rickets. Fish liver oils, as shark and blue fin tuna, are high in this. (VITAMIN D)

8. This acts to speed up some reaction involved in building hemoglobin in the blood and helps to improve iron absorption. This is needed only in small amounts and is found in most natural foods. (COPPER)
9. This helps hold your body cells together and keeps the walls of the blood vessels strong. It also is needed to heal wounds. Without this your gums may bleed. Good sources of this are: oranges and other citrus fruits, tomatoes, cantaloupe, strawberries, and potatoes. (VITAMIN C)
10. This is needed to help the cells use energy from food and keep the nerves and skin in good condition. Foods high in this are: meats and whole or enriched breads and cereals. (B-VITAMINS)
11. This is used as fuel in the body to give you energy for work and play. Good sources of this are: breads and cereals and some vegetables, as corn and potatoes. Others are honey, syrups, sugars, jams, and jellies. (CARBOHYDRATES)

APPENDIX D

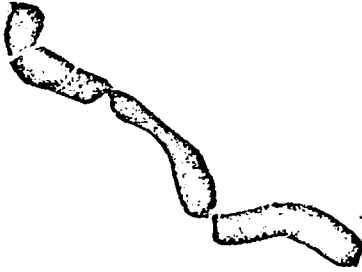
NUTRITIONAL CARD SORT

Students were each given four cards. These cards pictured and named the following foods: beans, ice cream cone, chorizo (Mexican sausage), and flour tortillas (round, thin Mexican breads). These cards are illustrated in this appendix.

Directions (Verbal)

Put the cards in order of nutritional value with relation to protein content. Place on top the food containing the most protein value.

Clip your set together and write your name on the top of the card.



Chorizo (Mexican Sausage)



Helado (Ice Cream Cone)



Beans



Flour tortillas (Bread)

APPENDIX E

LESSON EVALUATION

Students completed the lesson evaluation forms following each lesson. An illustration of this device is presented herein.

Directions (Verbal)

Fill in your responses to the questions.

Name _____

Since our last class, I fixed these low-cost foods at home:

- 1.
- 2.
- 3.

Since our last class, someone else at my house fixed these low-cost foods because I told them about them:

- 1.
- 2.
- 3.

The main idea I learned in class today was:

_____ .

I enjoyed fixing the foods in class today (check one):







APPENDIX F

EXTENSION'S CURRICULUM

Choices: no oven or
range; outdoor coals;
oven

IDEAS TO BE TAUGHT:

1. Foods that are sources of Vitamin C.
2. A person needs to eat Vitamin C food everyday.

SPECIAL NOTE: There are several possible choices for the variations in the food preparation section of the lesson. The food used should be dependent upon facilities, number interest, commodities available when lesson is used, and the seasonal foods available. Because of this only general lesson materials are listed below.

MATERIALS:

Name tags (if still needed)
Soap - hand and dish
Paper towels
Paper plates
Napkins
Dish cloths, towels
Plastic cloth or paper for table cover
Vitamin C poster (on loan from County office
or How Food Affects You, flip chart)

LEADER PREPARATION: (Optional)

1. Read page 19 in Eat to Live, or page 12 in Nutrition Handbook for Family Food Counseling. Read about specific fruits selected to be used in this lesson in USDA bulletin, How to Buy Fresh Fruits.

2. Decide which one of the foods will be used for the preparation: (a) Kabobs--meat cubes, tomatoes, green peppers; (b) Kabobs--meat cubes, citrus segments; (c) Stuffed orange shells; (d) Cabbage slaw, plain or with lemon carrot dressing. In making your selection, please consider seasonal foods available, as well as likes of the group members and meeting facilities. Be able to tell members the least expensive local source for foods selected.

3. Either make your own Vitamin C Rebus game or borrow one from County Extension Office.

BEFORE MEMBERS ARRIVE:

1. If you select to do Kabobs, you may want to have some meat chunks already in marinade to hurry the preparation time along. The process can still be demonstrated at the meeting so members will understand. You'll need something for skewers--coat hangers, maybe? (If you have painted coat hangers, the paint should be removed by burning it off or rubbing with steel wool before using it.)
2. If you are cooking outside, the outdoor fire should be readied so coals will be available.
3. (Optional) Select a short game for the opening of the meeting.

LESSON BEGINS:

1. Do Vitamin C Rebus game. You will have to explain that each card has pictures of objects. When the name of the objects or the activity shown in the pictures are said aloud, the result, if correct, will sound like the name of a food. All of the foods in the game today are those that are sources of Vitamin C.

You may show one card at a time to the group and have them respond.

You may display all of the cards and let the group have time individually to look at them and then respond.

(Optional) If you have equipment and facilities, you may wish to show the slide set, "Consumer Tips on Fresh Citrus," script is enclosed. Slides 1-9, 14-16, and 20-40 should be used. These slides are available on loan from the County Extension office. You will need to locate a slide projector.

2. Discuss Vitamin C. We need some of these Vitamin C foods everyday because our bodies don't store this vitamin. Vitamin C is important because: (Show Vitamin C poster on page 21 in How Food Affects You flip chart.) (a) It helps hold your body cells together and keeps the walls of your blood vessels strong. (b) It is needed to heal wounds. (c) Without it, your gums may bleed. Overcooking destroys Vitamin C.

3. Explain food preparation procedure to be used. Wash fruits and vegetables to remove dirt and any pesticides that might remain on them. Give members information on the selection of the specific fruits and vegetables used. You may refer to the USDA bulletins, How to Buy Fresh Fruits or How to Buy Fresh Vegetables. Depending upon the recipe selected, you may need to demonstrate the following techniques: (a) shredding; (b) removing seeds of bell pepper; (c) hollowing out orange; (d) cutting vegetables for Kabobs. You might also like to suggest substitutions for ingredients if applicable (example: cantaloupe cubes or balls for a fruit in the fruit cup).

4. Divide members into work groups and let each group prepare food.

5. Serve food attractively.

6. Everyone help clean up work and meeting area.

7. Send home a "Vitamin C sheet" from coloring book.

8. Mail in your meeting report card.

APPENDIX G

CULTURALLY RELEVANT CURRICULUM

The culturally relevant curriculum, Curriculum A, was adapted from the Extension's curriculum. The following are adaptations to Extension's previously illustrated lesson:

IDEAS TO BE LEARNED:

1. Include those stated by Extension.
2. The food preparation (empanadas or chiles rellenos) contains several nutrients needed for growth and good health.

MATERIALS:

1. Include those listed by Extension.
2. Comparison Cards developed by the National Dairy Council (borrow from your Extension Assistant).

LEADER PREPARATION:

1. Follow steps one and three in Extension's curriculum.
2. Decide which of the foods will be used for the preparation: (a) chiles rellenos con queso (chiles stuffed with cheese); (b) empanadas (Mexican turnovers) filled with either strawberries or crushed pineapple.

BEFORE MEMBERS ARRIVE:

1. Omit steps one and two from Extension's curriculum.
2. If strawberry empanadas were selected for the food preparation and if you choose to use frozen strawberries, thaw before the class meeting.

LESSON BEGINS:

1. Follow steps listed by Extension.
2. During step 2 (discussion of vitamin C) discuss other nutrients contained in the food preparation selected: (a) If empanadas were selected, review the contribution of the Bread and Cereal Group studied last week.

Some possible questions are: "Where do you get all the energy to play games?" (Answer: from food). "Do foods from every food group give us energy?" Breads and cereals are energy-giving foods. Bread and cereal products should be enriched to assure that they will be of the best value nutritionally. The B-vitamin in whole grains and in enriched grains help the body use energy. (b) If chiles rellenos con queso were selected, review the contribution of the Milk Group, with particular reference to the cheese. Foods from the Milk Group (cheese) provide the body with calcium which helps to build strong bones and teeth. If "fortified" with Vitamin D, the vitamins present will also help build strong bones. Both the chiles and the cheese contain large amounts of Vitamin A, which is needed for growth; it helps you see in the dark and is needed for healthy skin.

3. Show students the Dairy Council's Comparison Cards so they can visualize the nutritive contribution of each food used in the preparation.

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