

TEACHERS' PERCEPTIONS OF NUTRITION EDUCATION
IN OKLAHOMA PUBLIC SCHOOLS

By

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CHAPTER I

INTRODUCTION

With recognition of the many health problems that are related to dietary habits, nutrition education is quickly becoming an important issue. The dietary patterns established during childhood influence life-long eating habits making the elementary years an opportune time to establish habits that lead to good nutrition. The school can become a major influence on the habit formation of young children.

Nutrition concepts can be integrated into classroom curricula, as well as into the school foodservice and health programs.

A nutrition education program should be sequential from the preschool years and integrated into appropriate school courses, such as family living, sociology, health, and science, or provided informally as the setting dictates (American Dietetic Association, 1974, p. 520).

In the past, studies have indicated a somewhat limited understanding of nutrition by elementary teachers and others working directly in the field of nutrition (Peterson and Kies, 1972). New and interesting programs need to be developed to bring about a more effective integration of nutrition into the classroom. Good food choices do not come naturally to people. The ability to select nutritionally balanced foods has to be learned.

Significance of the Problem

The Dobbins (1970) study that surveyed school children in Oklahoma

indicated a need for more nutrition education at all age levels with a coordinated approach in all areas of the curriculum. Some suggestions were offered for utilizing the school lunchroom as a laboratory for nutrition education.

Silvey (1977) found that the majority of teachers surveyed in Tulsa thought nutrition should be taught in the school, was effective in forming eating habits, and should be offered at all grade levels. This was also confirmed by Reeder (1975) with a survey of Oklahoma teachers.

In general, the studies of other states showed that the eating habits of students in elementary through high school grade levels were poor. Information on the eating habits of children in Oklahoma has been collected, as well as information on the nutrition education and which teachers are presenting nutrition information.

The Dobbins (1970) study suggested that a nutrition education course be required in the preparation of all teachers. It appeared from Silvey's (1977) study that teachers see a need for nutrition education in the schools, but have a hard time incorporating it into their courses. There is a need in Oklahoma to establish the nutrition background of educators and determine how and when nutrition education is being taught to the students.

The Oklahoma Health Planning Commission stated in the assessment of 1977 that there are no data on malnutrition in Oklahoma. There is only information on a national and regional basis.

The Health and Nutrition Examination Survey (1974) of 1971-72 found that black children and children from lower income families have a lower daily intake of calories. Also the lower hemoglobin values were most likely to occur in the same group of children.

The Ten-State Nutrition Survey (1972) found that malnutrition increases as the income level decreases. Social, cultural, and geographical differences also influence nutritional status. For children under the age of 17, nutritional status is dependent on the educational level of the person buying the food.

Amendments were passed for the Child Nutrition Act of 1966 by the 95th Congress, Public Law 95-166, which became effective November 10, 1977. The amendments allowed for revision and extension of the summer food programs, the special milk programs, and school breakfast program. This also authorized the Secretary of Agriculture to conduct a nutrition information and education program as part of foodservice programs for children.

To fulfill the requirements mandated by the amendments, a needs assessment was completed for the state of Oklahoma in June, 1979, by the Oklahoma State University, Division of Home Economics. It was submitted to the School Lunch Section--Oklahoma State Department of Education.

This needs assessment was completed:

. . . to identify the discrepancies between 'what should be' and 'what is' and shall be applied to each categories listed below to enable state educational agencies to determine their nutrition education and training needs. The needs assessment shall identify the following as a minimum: (1) children, teachers, and food service personnel in need of nutrition education and training (Baird, 1979, p. 1).

The information gathered on the teachers' forms is analyzed for this thesis.

Purpose and Objectives

The purpose of this study is to identify the nutritional background of public school teachers in Oklahoma and their self-perceived role in

nutrition education. The objectives of this study are as follows:

1. to assess the perceived successful teaching methods and nutrition background of the teachers;
2. to determine if the teachers' present position influences the teachers' perceived choice of best grade level in which to teach nutrition;
3. to ascertain whether the number of hours nutrition education was taught relates to (a) the grade level where nutrition was taught, and (b) the courses taught.
4. to assess teachers' perceptions of importance of school lunch and if perceptions differ by whether or not they taught nutrition;
5. make recommendations for future studies in nutrition education in public schools.

Hypotheses

The following hypotheses are postulated for this study:

- H₁: There will be no significant relationship between the number of successful teaching methods utilized and the nutrition background of the teacher.
- H₂: There will be no significant relationship between the grade level being taught and the grade level in which the teacher perceives nutrition education should be offered.
- H₃: There will be no significant relationship between the number of hours of nutrition taught the previous year and (a) the grade level where nutrition was taught and (b) the courses taught.

H₄: There is no significant relationship between the importance of school foodservice as perceived by educators and whether or not they taught nutrition.

Assumptions

It is assumed that:

1. All teachers completed the questionnaire to the best of their abilities.
2. The school foodservice has an effect on the dietary habits of school children.
3. The food habits of early childhood are subject to change through early elementary education.
4. The integration of nutrition education is an effective means of educating young children to good nutritional habits.

Limitations

The following limitations are recognized for this study:

1. The questionnaires were mailed to the participants for completion and mailed back rather than being administered in person.
2. The questionnaire does not allow for free comment by the teachers on the items.

Definitions

The following definitions are utilized in this study:

1. Nutrition education: "the knowledge of food, how the body uses it, and the application of this knowledge to the formation of

good eating habits" (American Dietetic Association, 1973, p. 429).

2. Present position: the grade level and subject matter the teacher presently is teaching.
3. Nutrition background: the amount and type of nutrition information the teachers have received in the past, either through formal classes, workshops, or on their own.
4. Resources: persons knowledgeable in nutrition, books, films, associations, pamphlets, and curriculum guides in nutrition.

CHAPTER II

REVIEW OF LITERATURE

This chapter contains information on the need for nutrition education. Teacher attitudes and needs in regard to nutrition education that have been found in previous studies are presented. The possibility of the school lunch program being utilized in the nutrition education process will also be discussed.

Need for Nutrition Education

There may be many reasons for the reported poor nutritional status of the United States population. Some of those are lack of money, lack of knowledge, or even lack of motivation to choose nutritionally sound diets. "Nutrition education is frequently needed regardless of income, geographic location, cultural background, social status, or level of education (Todhunter, 1969, p. 8).

There is a need for nutrition education in our affluent but nutritionally illiterate population. Schubert (1970, p. 9) states, "The real goal of nutrition education is to make diets better--to have people eat a life-sustaining, life-enhancing diet."

The United States Senate Select Committee on Nutrition and Human Needs (1974) writes that good nutritional status supported by sound eating practices is important in preventing some of the chronic diseases which are major health problems in our society. "Obesity, anemia, and

dental caries head the list of nutritional problems of people living in the U. S." (White, 1976, p. 54).

Schubert (1970, p. 12) writes, "Conclusive evidence now indicates that malnutrition is most certainly a serious health problem to our population at all economic levels and must be recognized as such."

"The National Academy of Sciences/National Research Council studied the relationship of nutrition to brain development and found that nutrition plays a role apart from social factors on intellectual performances" (Chasen, 1975, p. 74). Children who are hungry show behavior changes such as apathy, lethargy, decreased attention span, and an over-concern for food, so much that stimuli does not create a response from the children (Chasen, 1975). "The hungry child is apathetic, disinterested, and irritable when confronted with difficult tasks" (Read, 1973, p. 390).

Leverton (1969, p. 9) stated, "An understanding of the role of nutrition and its application to daily living can be regarded as preventive medicine and is essential to the future health of everyone, especially children." The stamina, health, and productiveness of the nation's population in a land of plenty is impeded by apathy and/or ignorance of the subject of nutritional health (Schubert, 1970).

In the Classroom

A few years ago, in a joint meeting of the Food and Agriculture Organization (FAO), United Nations Educational Scientific, Cultural Organization (UNESCO), and World Health Organization (WHO), programs were emphasized concerning food and nutrition that begin when children enter school and last through college levels. The aim was to help people obtain the best diet possible within each person's cultural and

economic environment (Lee, Watson, Price, Covington, and Robert Davis Associates, 1975).

Since school children's learning is affected by their nutritional status and the school has contact with the children such a large portion of the day, the school seems to be the appropriate place to include nutrition information. "Nutrition education programs could do much to convey 'authoritative or persuasive information' to children when they are beginning to form nutrition habits thereby promoting their health throughout the life cycle" (American Dietetic Association, 1973, p. 663).

"The school system is not only a logical starting point, but also represents a critical stage at which nutrition information should be introduced" (Sipple, 1971, p. 20). Leverton (1969, p. 8) states, "The school has an important role in promoting and maintaining the nutritional well-being of the child so that he may learn and function at optimal levels." When a child comes into contact with subjects relating to his health, growth, and development, the parents and community are involved eventually (Schubert, 1970).

Nutrition education needs to be introduced as early as possible in the child's life, when habits are easier to influence. Dietary patterns begin with the infant and last through the lifetime. "Away from home, the school is probably the most important institution that shapes a person's future social and cultural characteristics, his values, and practices" (Lee et al., 1975, p. 40).

Eating habits of school-age children may be easily influenced during the early elementary years; therefore, instruction in nutrition should be provided for the student both in school and home (Smith, 1979). Ypermen and Vermersch (1979) found children retain nutrition information

gained in the school setting if it is reinforced in the home by good nutrition practices. They assume the primary influence will be the nutrition education the school presents.

Health education programs in the schools offer exceptional opportunities for effective nutrition education for large numbers of children (Sinacore and Harrison, 1971). Callahan (1979, p. 75) writes:

Nutrition education must be integrated into the curriculum from kindergarten through grade 12 so that the child will have the knowledge to know what constitutes a nutritious diet and why it should be eaten, and the wisdom to select and eat these foods.

Factors commonly thought to influence children's food habits need to be clarified and those associated with expected outcomes of nutrition education need to be identified (Yperman and Vermersch., 1979). Nutrition education can be important in getting the food consumed once it is well prepared and served.

"The nutritional status of children can certainly be related to the education and economic status, motivation, and responsiveness of their parents" (Cameron, 1977, p. 19). Teachers, school nurse and food-service supervisors can combine to provide interesting and varied experiences in nutrition education (Levine et al., 1979, p. 126).

Callahan (1979) states:

Nutrition education must be a cooperative effort shared by the home, the school, and the community. Teachers and school food-service personnel must work together as a team to get the message back to the home (p. 80).

In Oklahoma

With the move to include more nutrition education in the schools, there has become the demand to evaluate the effects of nutrition programs on children's food habits. The Dobbins (1970) study on the

nutritional status of school children in Oklahoma found that only one-third of the students surveyed had sufficient intakes of calcium, vitamin A, or vitamin C. Low income groups were generally low in all nutrients. This study has concluded that there is a need at all age levels for nutrition education. Also nutrition education is seen as being needed for parents and teachers.

The needs assessment (Baird, 1979) completed by Oklahoma State University evaluated the eating patterns of Oklahoma children. This study included 7,588 students from grades K-12.

One-fifth of the students did not eat breakfast on the day of the survey. Approximately 6 percent of the students omitted lunch. Two-thirds of the students surveyed participated in the school lunch program. It appeared that the incidence of skipping meals increased as the grade level increased.

Students were asked how they learned about what food was good for them. The top three responses were parents (75%), teachers (66%), and television programs (41%). Two-thirds of the students knew the Basic Four Food Groups.

The students' 24-hour recalls were then evaluated using the Basic Four and the Basic Four plus vitamin A and C source with the adequacy of the diets defined in the study. Only 27.4 percent of the students responding had an adequate diet when evaluated using the Basic Four alone. Approximately 15 percent had an adequate diet when evaluated with the Basic Four plus the vitamin A and C source.

In this study the boys had significantly better diets than the girls. Knowing the Basic Four Food Groups was not related to dietary adequacy. The students who participated in the school lunch program

were significantly more apt to have adequate diets than those who had lunch elsewhere.

In Other States

In 1973, Wisconsin public school students were surveyed on their food habits. A total of 4,636 students completed the questionnaire (Nutter, 1976). Of the children in this study, less than 20 percent of either the boys or girls had a satisfactory daily meal pattern as defined in the study.

The Ten-State Survey (1972) conducted in 1972 shows that all groups of the population have low hemoglobin and hematocrit levels due to low iron intake. The research points out that characteristics of malnutrition are unique to the population and location surveyed. The income level and the social, cultural, and geographical aspects of the population were found to be factors affecting the nutritional status of the people surveyed.

In a study of a summer foodservice program in Fort Valley, Georgia, in which 340 children participated by completing questionnaires, a large proportion of the children skipped one or two more meals daily and quite frequently consumed snacks (Hunt, 1979). The snack food items often mentioned were potato chips, candy, soft drinks, and cookies. "Seventy-three percent of the boys and 69 percent of the girls stated that they usually did not eat breakfast (Hunt, 1979, p. 74). Another section of the questionnaire included food preferences. Out of 200 foods listed as least preferred, 138 were vegetables alone or vegetables incorporated into other dishes. Many of these children stated they did not have a

nutrition information source; however, most responded they would like to have a reliable nutrition source.

Trulson, Hegsted, and Stare (1949) found in a New York State nutrition study that elementary school children exhibited better food habits (practices) than did those of the secondary schools. The researchers also found that adolescent boys made better food choices than did the girls. Baker (1972) reported after working with fourth and fifth graders that scores on nutrition tests were higher upon completion of a nutrition unit. However, no significant changes occurred in their diet due to the nutrition presentation.

Callahan (1979), in a Massachusetts survey, discovered that the number of students not eating lunch appeared to increase as the mother's influence decreased. Those children participating in the school lunch program had better dietary intakes than those who did not participate.

Needs of the Nutrition Teacher

The need for nutrition education can conceivably be met if the needs of the teachers themselves are met. If these teachers have a good basis from which to work, the learning process will be facilitated. In order to deal with nutrition questions, teachers need a good understanding of nutrition and must be able to evaluate information that is published.

Need for Discrimination of Facts

"The home economics teachers may be the first and often the primary source of nutrition information for many people" (Henneman, Fox, and Kreutz, 1976, p. 25). Other teachers need to learn how to evaluate the

information on nutrition so they can present it to their students and teach their students to evaluate the information themselves.

During the 1976 annual meeting of the Society for Nutrition Education, a clinical psychologist assessed the needs and concerns of 38 professional nutrition educators. The psychologist found, "Basic to all needs felt by the majority of the respondents was that they be able to motivate their audiences to act on sound nutrition information" (Celender, 1978, p. 82).

Behavior is not always influenced by information. For most people, information alone is not sufficient to promote and maintain good dietary habits. Unfortunately there are too few immediate benefits associated with the improved dietary practices. Guthrie (1978) writes:

The challenge for us who practice nutrition education is to find ways in addition to providing information to change the nutrition related behavior of those who are not acting on the information they have. Preventative dietary practices offer very little identifiable satisfaction and are therefore difficult to maintain (p. 52).

Need for College Requirements

Students' growth and development are influenced by their teachers. Yet it is more rare that colleges and universities require nutrition education units to their education majors (Schubert, 1970).

The data on the limited educational background and the practices of many of the teachers who include nutrition in their courses suggest the need for some inservice training for teachers involved in nutrition education (Levine et al., 1979, p. 126).

When Schmidt (1974) surveyed Oklahoma kindergarten teachers, she found their main source of background information in nutrition came from junior high or high school home economics classes. In 1977, Byrd found

that most college preparation programs had not included methods of teaching nutrition. She surveyed early elementary teachers in Florida and found "47 percent had nutrition as part of health, science, or other related courses in college; 40 percent had no college background in nutrition; and 13 percent had a separate course in nutrition" (p. 29). Implications of this study show a need for increased training in nutrition for teachers and future teachers.

The American Dietetic Association (1978)

. . . recommends that nutrition departments of colleges and universities be encouraged to offer basic nutrition courses as electives for all students majoring in elementary and secondary education, as well as for all other interested students (p. 304).

The Dobbins (1970) study in Oklahoma indicated a need for a nutrition education course to be required for all teachers. Another study in 1978 was conducted by two dietetic interns in the Milwaukee, Wisconsin, Public School Food Service Department. They surveyed 60 colleges and universities in the United States about inclusion of a human nutrition course required for all education majors. "Ninety-five percent of those responding felt that nutrition education should be a requirement for education majors and 80 percent reported having adequate personnel to teach such a class" (Allen, 1978, p. 80).

Need for In-Service Training and Workshops

Callahan (1979) writes that nutrition courses should be required at teacher training institutes and in-service courses should be offered for those already teaching. Callahan (1973) advocated the use of in-service teacher workshops to help the teachers learn about nutrition and to develop ideas for teaching nutrition rather than actually requiring

all teachers to take a college course in nutrition. Cooper and Philp (1974) conducted a nutrition education workshop to provide basic nutrition information and a step by step approach to teaching nutrition for teachers grade K-3. More than 70 percent of their participants taught some kind of nutrition education to their classes after the workshop. The students in those classes showed improved nutrition knowledge and there was improvement in eating behavior reported by those children.

After completing a workshop for home economics teachers, Henneman et al. (1976, p. 27) stated that "Information accompanied by individualized related assignments and laboratory food experiences gave the teachers a firm command of much of the material and some guidelines for working with it in their own classrooms."

The Team Approach

The Nutrition Education Advisory Committee recommends that nutrition teachers could use a nutrition education specialist to coordinate and facilitate the different aspects of a school nutrition education program (Peck, 1976). Some states are using this concept to enhance nutrition programs in their schools.

The classroom teacher must assume a major role in teaching nutrition to children. "When thinking of ways to train teachers to teach nutrition in the classroom, it seems logical to include school foodservice personnel to support teachers' efforts, and then train the two groups to work together as a team" (Lee et al., 1974, p. 40). Members of the nutrition education team can be trained to support each others' efforts. Lowe (1967, p. 25) writes, "Effective nutrition teaching needs to be correlated with all agencies of the school and community."

Need for Effective Nutrition Curriculum

Silvey (1977) reported that the teachers needed to find ways to incorporate nutrition into the courses being taught. More training with information on utilizing the materials available was considered important. Peterson and Kies (1972) wrote that innovative programs need to be developed to bring about more effective integrated classroom teaching.

In a study conducted in Nebraska with K-3 grade teachers, Peterson and Kies (1972) asked about the preparatory curriculum of Nebraska teachers. It was found that the teacher's background information was poor in nutrition knowledge. Low test scores indicated that few teachers were certain of the composition of an adequate breakfast. The findings of the teachers who had the opportunity to teach nutrition showed that "59 percent of the teachers had a related course in nutrition, 9 percent had taken a separate course in nutrition; and nearly 33 percent of the teachers surveyed had had no nutrition education on the college level" (p. 12). Sodosky (1972) recommends that basic nutrition information, method of teaching, and integrating nutrition be required for certification of the elementary school teachers. The American Dietetic Association (1978) states that:

Nutrition concepts can be integrated into on-going classroom curriculum as well as in the school foodservice and school health programs. Nutrition education specialists must be employed in school systems to develop, implement, and coordinate plans for nutrition education (p. 303).

An opposing point of view is given by Fisk (1979, p. 33) who stated, "Integrating nutrition with other subjects sounds like a good idea when one first hears it, but it can cause confusion or ineffective learning in the classroom." He claims teachers do not need to know nutrition to

teach the subject in school. When supplied with appropriate tools, the teacher needs no nutrition background.

When speaking on nutrition programs plans and guides to be used in teaching nutrition, Cooper and Go (1976, p. 66) state "although the potential of nutrition guides in teaching is excellent, the actual effectiveness in conveying the information to students may be limited." There are indications that the teachers need new materials and techniques for teaching nutrition information. Teachers need assistance in obtaining methods, techniques, and appropriate learning activities for nutrition instruction (Sodowsky, 1972; Schmidt, 1974).

Sipple (1971, p. 20) stated, "We not only need to develop more good materials for nutrition education, but we must include definite arrangements for the use of the material." Fisk (1979) agrees with this statement and adds that a follow-up evaluation needs to be completed.

Teachers' Attitudes Toward Nutrition Education

Most nutrition educators act on the belief that the better informed people are, the more likely they are to make better choices in the selection and preparation of their food (Guthrie, 1978). It is important to introduce this nutrition information in the early stages of life on the basis that the knowledge will be utilized through the years to aid in selection of nutritionally sound meals. Sims (1976) states that nutrition educators would like to assume that presenting basic concepts and principles of nutrition would motivate people to apply this knowledge to food choices. Sinacore and Harrison (1971, p. 2285) stated "Our task is to help the child build nutritionally viable concepts, while respecting

those viable concepts he already has which are part of his family and cultural background."

Sodowsky (1972) found that:

. . . Oklahoma kindergarten teachers believed that the classroom teacher was the one who should teach nutrition to kindergarten children. Teachers also reported that parents and school nurses should also help teach nutrition to young children (as opposed to a nutrition specialist) (p. 74).

She also found that the majority of the kindergarten teachers felt they knew enough nutrition information to incorporate it into their classroom curriculum.

The Responsibility for Teaching Nutrition

In another study, Sinacore and Harrison (1971, p. 2289) stated "Few teachers are adequately trained; the demands on their time and energy are already heavy; sometimes previous negative conceptions of nutrition on the part of the teacher must be counteracted." Schmidt (1974) also found that lack of nutrition education limited the effectiveness of the programs in nutrition.

Silvey (1977) found that teachers were generally supportive of nutrition education. However, only 36 percent of the teachers surveyed thought that each elementary teacher should be involved in an integrated nutrition education program. Seventy-nine percent of the teachers surveyed thought nutrition education should be taught in all elementary grades. Many of the teachers felt like they had neither the time or the appropriate training for teaching nutrition. Most teachers felt that a teacher of such courses as health, home economics, or physical education should have the responsibility of teaching nutrition.

In the study Peterson and Kies (1972) conducted in Nebraska, it was found that teachers had minimal background in nutrition knowledge and little preparation for techniques or methods of teaching nutrition in the classroom. Sixty-three percent of the teachers surveyed stated nutrition should be taught as an integrated course, 13 percent of the teachers did not teach nutrition. Of those who did teach nutrition, 53 percent integrated nutrition into another course while 33 percent taught nutrition as a separate entity.

The classroom teacher lays the foundation on which to build a healthy vigorous society, for it is the teacher who leads the student step-by-step toward a total understanding of the importance nutrition plays in his life (Parker, 1971, p. 35).

Yperman and Vermersch (1979) reported that the environment of the school, the home, and the overall society either reinforce or inhibit application of the attitudes and preferences children acquire concerning nutrition. The nutrition teacher needs to know the effect on the dietary habits before the effectiveness of programs can be measured.

Non-Traditional Nutrition Education

Spitze (1976) discusses a nutrition education program that was conducted at the high school level. She was looking for the outcome of using a curriculum guide which allowed for discovery learning. This type of learning included no reading assignments or lectures, but utilized games, skits, and non-traditional methods of teaching. The students enjoyed this type of learning more than the traditional methods of teaching.

According to Smith (1979), favorable reaction to nutrition lessons have been found when the classroom teacher becomes involved in nutrition workshops and then teaches the nutrition by methods learned from the

workshop. However, this information may be biased because classroom teachers who attend workshops are probably more interested, enthusiastic, and motivated than other teachers.

School Lunch as an Educational Tool

Many reports emphasize the need to use the school lunchroom and the school foodservice employees to help teach nutrition to children. Dukes (1967, p. 43) states, "The school lunchroom should be an integral part of the educational program of a school rather than merely a place to fulfill the biological needs of faculty and students, as it now is in many schools." In order for eating habits to improve, the balanced plate lunch at the school needs to be accompanied by nutrition education (Curry and Toma, 1975). Leverton (1969, p. 9) stated, "An effective program does more than give children food they need and enjoy. It provides an opportunity for developing and reinforcing good food habits through repeated practice and experience."

The American Dietetic Association (1973) recommended through legislation the utilization of the school foodservice program as a laboratory experience in the teaching of nutrition. Curry and Toma (1975) wrote that the school foodservice personnel are in daily contact with children thus presenting opportunities to transfer and interpret nutrition information.

Group Cooperation

Leverton (1968) stated that the school lunch program is strengthened with cooperation from administrators, parents, and community leaders.

This cooperation and a good working relationship among these groups eventually lead to good participation in the program by the students. Carr (1964) believed that the youth will have more respect for the school foodservice program if the lunchroom personnel are adequately trained and there is cooperation and interest among the parents, teachers, and administrators.

Bishop (1979, p. 62), a school nutritionist, wrote "It is important that foodservice personnel learn what the teachers are trying to teach, and the teachers recognize the foodservice worker as a person who can support the teaching effort." This particular school system successfully utilized in-service meetings to help the teachers to teach nutrition, as well as working to educate the parents of the children.

Student Participation

In a program carried out by the school foodservice in Topeka, Kansas, it was found that the foodservice worker and the lunchroom can be effective aids in nutrition education. Roepke (1978, p. 426) stated, "Our philosophy has been to teach balanced nutrition by helping students to choose and enjoy a wide variety of nutritious foods." The public school students study nutrition and plan menus that are served in the school lunchroom. Bulletin boards are prepared by the foodservice worker in the lunchroom to demonstrate nutrition concepts. The school foodservice also introduced a salad-soup-sandwich bar enabling students to create their own Type A lunches, on an offer versus serve basis.

"It is believed that children can learn to appreciate good nutrition by regularly participating in school meals" (Yperman and Vermersch, 1979, p. 73). A desired outcome of nutrition education programs is the

increased participation in school lunch. The children's preferences for fast foods presents a special challenge for nutrition educators.

Summary

There appears to be a need for nutrition education due to the poor eating habits of children. It is generally found that calcium, iron, vitamin A, or vitamin C are low in children's diets. This poor nutritional status can be due to many factors such as income levels, geographical locations, cultural backgrounds, social status, and level of education. Research shows that nutritional status is important in the many health problems that effect our society today.

According to the research available, nutrition education should be offered starting with the elementary grades and continue throughout life. The school appears to be an appropriate place for nutrition to be offered since good nutritional status is important to the child's learning. It has been discovered that children who are hungry show behavior changes that do not coincide with the normal learning process.

Research shows that many teachers are supportive of nutrition education; however, others state that they have neither the time nor training to teach nutrition. Teachers generally have poor nutrition backgrounds, and a need has been shown for inclusion of nutrition courses in undergraduate curriculum, as well as in-service meetings and nutrition workshops.

There is a conflict of ideas as to whether nutrition should be offered as a separate course or integrated into other subjects. Teachers see a need for more available nutrition materials and instructions on how to use the materials to their fullest potential. Studies show that

both traditional and non-traditional teaching methods can be used successfully in teaching nutrition.

Coordination among teachers, nutritionists, foodservice personnel, and school nurses can help to improve the nutrition programs. The involvement of the parents of students and the community in the nutrition programs are important. Research shows that students retain nutrition knowledge longer if the information is reinforced in the home by good family nutritional habits. However, often dietary habits of students are not significantly changed due to nutrition presentations.

When adequately trained, the foodservice worker can support the teaching efforts of the nutrition program. The school lunch provides an opportune time to transfer and interpret nutrition information for the students. The school lunch program can be used as a laboratory experience to demonstrate good nutritional habits. With participation in the school lunch program, students tend to improve the nutritional adequacy of their diet.

CHAPTER III

RESEARCH DESIGN

This chapter includes the procedure used to meet the objectives of this study, selection of population sample, and the analysis of the data.

Amendments to the Child Nutrition Act were passed and became effective in November, 1977, as Public Law 95-166. Included in this is a needs assessment mandated for each state. This assessment is to determine the nutrition education and training needs, as well as a description of the problems and needs in Oklahoma.

The needs assessment to fulfill the mandate for Oklahoma was completed by Oklahoma State University, Division of Home Economics in 1979. Students, teachers, administrators, and school foodservice personnel in Oklahoma were surveyed. The teachers were randomly selected along with the students by classroom; therefore, if the class completed the student questionnaire, the teacher also completed the teachers' questionnaire.

Type of Research Design

The survey type of research with the use of a mailed questionnaire was conducted to obtain the data for this study. A survey is best used "in describing current practices or beliefs with the intent of making intelligent plans for improving conditions or processes in a particular local situation" (Compton and Hall, 1972, p. 139).

The questionnaire method of data collection was determined to have several advantages. A questionnaire can provide anonymity for its respondents who, in turn, give information more freely. This method can be administered to a large group, thus eliminating the expense of time and financial resources. The disadvantages of using questionnaires include: (1) the diversity of meanings given to the questions, (2) the difficulty in securing valid personal information, and (3) the uncertainty of receiving an adequate number of responses (Compton and Hall, 1972). The use of a checklist provides ease in the reporting of information, but may limit the responses given to only those listed (Grobman, 1968).

Sample

The sample was chosen from all public schools in Oklahoma by a stratified random selection process. The first step in the sample selection was the development of a listing of all school districts in Oklahoma. The districts were then categorized into seven sizes according to daily attendance. The categories were 0-500; 501-1,000; 1,001-2,500; 2,501-5,000; 5,001-10,000; 10,001-20,000; and over 20,000 average daily attendance. The number of districts needed within each group was determined and randomly selected through the use of the computer.

Cooperation was then solicited from the selected districts. This was done by letters sent to superintendents. If a district chose not to participate, the first alternative chosen by dropping down four names on the computer listing, was contacted. The cooperating districts were asked to furnish the name of a person to be responsible for administration of the surveys.

Using a sample size of 10,000 or approximately 2 percent, 400 classrooms (based on 25 per classroom) needed to be surveyed. These classrooms plus a 20 percent over-sample were allocated to the seven groups.

Group allocations were:

Groups	Size	Classrooms
1	0-500	76
2	501-1,000	74
3	1,001-2,500	91
4	2,501-5,000	72
5	5,001-10,000	54
6	10,001-20,000	65
7	over 20,000	40

The liaison was contacted and asked to provide lists of all teachers by grade level and school within districts. The lists were then compiled and categorized in groups 1-7. The classrooms needed from each district were determined and randomly selected by the computer.

A total of 472 classrooms was selected. This represented a 20 percent over-sample (to account for possible non-participation by some selected classrooms) to assure a final total number of classrooms near 400.

Instrument

The questionnaire used in this study was one that Nutter (1975) devised and tested in Wisconsin in a similar survey. The validity and reliability testing on the Nutter (1975) study is accepted for this thesis. It was adapted for the needs assessment survey to gather data for Oklahoma. The questionnaire was pretested on a group of Stillwater, Oklahoma, teachers.

The questionnaire was designed to obtain information on the teachers' present positions in the schools, the subjects and grades taught,

the teachers' opinions on the school lunch and nutrition education. The questionnaire asked the teachers to list the materials they found most useful in their own teaching of nutrition. A copy of the instrument is in Appendix A, page 75.

Analysis

General descriptive data were obtained from the teachers on the questionnaire. Numbers and percentages will be utilized to analyze this information.

The first objective was to obtain the teachers' perceived successful teaching methods and their nutrition background. This was obtained through the breakdown of nutrition background into three levels and tabulating the number of perceived successful methods listed.

To fulfill the second objective of determining the influence of the teachers' present position on the perceived choices of where nutrition education should be taught, all possible combinations of grade levels being taught (due to teaching at more than one level) and the number of responses as to where it is perceived best to be taught were compared.

The third objective was to ascertain if there was a relationship between the number of hours of nutrition education taught, (a) the subject matter taught, and (b) the grade level taught. This was achieved through grouping of the subject matters and comparing with the number of hours taught in those groupings. The grouping of the possible teaching combinations presently being taught was compared to the number of hours of nutrition education taught.

To achieve the fourth objective of assessing the effects of the teachers' position in the school compared to their perceived value of

the school lunch programs, subsampling was used to fill all cells. The relationship of the information was calculated through comparing whether or not the teachers taught nutrition and the importance level of the teachers' rating of given reasons for school lunch programs.

The hypotheses were tested by the following methods. The significance level was set at 0.05.

H₁: There is no significant relationship between the number of successful teaching methods utilized and the nutrition background of the teacher.

To test the first hypothesis a frequency distribution and analysis of variance were applied to the data.

H₂: There is no significant relationship between the grade level taught and the grade level in which the teacher perceives nutrition education should be offered.

The second hypothesis was tested using a Chi square analysis.

H₃: There is no significant relationship between the number of hours of nutrition taught the previous year and (a) the grade level where nutrition was taught and (b) the courses taught.

The third hypothesis was tested using a Chi square analysis.

H₄: There is no significant relationship between the importance of school foodservice as perceived by educators and whether or not they taught nutrition.

The fourth hypothesis was tested using the F test to determine if a relationship was present.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of this study was to identify the nutritional background of public school teachers in Oklahoma and their self-perceived role in nutrition education. As part of the statewide nutrition survey conducted by Oklahoma State University, teachers in selected schools were asked to fill out a four-page questionnaire. A copy is in Appendix A, page 75. The questions were related to the teachers' attitudes and opinions on nutrition education and school foodservice, the teachers' position in the schools, and their nutrition background.

This chapter presents a description of the participating sample, an analysis of the data in accordance with the hypotheses of the study, and the results from the response portion of the research instrument.

Description of Respondents

The sample was chosen from all public schools in Oklahoma by a stratified random selection process. The first step in the sample selection was the development of a listing of all school districts in Oklahoma. The districts were then categorized into seven sizes according to daily attendance. The categories were 0-500; 501-1,000; 1,001-2,500; 2,501-5,000; 5,001-10,000; 10,001-20,000; and over 20,000

average daily attendance. The number of districts needed within each group was determined and randomly selected.

Cooperation was solicited from the selected districts by letters sent to superintendents. If a district chose not to participate, then the first alternative, chosen from dropping down four names on the computer listing, was contacted. The cooperating districts were asked to furnish the name of a liaison person to be responsible for administration of the surveys.

Using a sample size of 10,000 or two percent, 400 classrooms (based on 25 students per classroom) needed to be surveyed. These 400 classrooms plus a 20 percent over-sample were allocated to the seven groups.

Each liaison was contacted and asked to provide lists of all teachers by grade level and schools within districts. The lists were compiled and categorized into the designated groups. The number of classrooms needed from each district was determined and specific classrooms were randomly selected by the computer.

Of the 472 teachers selected for the sample, 390 completed the questionnaire. Some of the teachers did not respond because they did not have a class the first hour after lunch; others did not choose to complete and return the questionnaire. Responding teachers represented 33 school districts. It should be noted that answers will not always add to 390, since some teachers omitted some questions.

The teachers were asked to indicate the grade levels and subjects they teach in the schools by checking "all that apply." A summary of their responses is given in Table I and Table II. The percentage of teachers teaching at the four grade levels were distributed fairly evenly with the lowest percentage (21.8%) at the 4-6 level and the

highest percentage (36.4%) at the high school level. The largest number (34.6%) of teachers taught in general elementary curriculum; English language arts teachers were 26.7 percent of the group, with reading and social studies following with 18.5 percent.

TABLE I

TEACHERS' RESPONSES TO ITEM 1: "GRADE LEVEL YOU TEACH THIS YEAR"

Grade Level Represented	Number of Respondents*	Percent of all Respondents*
K-3	94	24.1%
4-6	85	21.8%
Junior High/ Middle School	114	29.2%
High School	142	36.4%

*Note that totals are greater than 390 and 100 percent since teachers could check more than one category.

Nutrition Background Information on Teachers

The willingness and capabilities in teaching nutrition may well lie with the type of preparation of the teacher. Historically, only teachers educated through home economics and sometimes health or science have taken nutrition courses as part of their college programs of study. A course in nutrition is required for Oklahoma certification only for home economics teachers (State of Oklahoma, 1978).

TABLE II

TEACHERS' RESPONSES TO ITEM 2: "WHAT SUBJECTS DO YOU TEACH?"

Subject	Number of Respondents*	Percent of all Respondents*
General Elementary Curriculum	135	34.6%
Reading	72	18.5%
General Health Education	32	8.2%
Biology	9	2.3%
Chemistry	6	1.5%
Home Economics	10	2.6%
Physical Education	32	8.2%
Social Studies	72	18.5%
English Language Art	104	26.7%
Art	42	10.8%
Elementary Science	47	12.1%
Physiology	3	0.8%
Other Science	15	3.9%
Other	132	33.9%

*Note that totals are greater than 390 and 100 percent since teachers could check more than one category.

The teachers surveyed were asked to indicate their own nutrition background. The responses are given in Table III with number and percentage of respondents for each category. Only one-fourth of the teachers had a regular college course in nutrition, and over one-half studied nutrition in junior high and high school, while 5.6 percent had not studied nutrition at all.

TABLE III
TEACHERS' RESPONSES TO ITEM 13: "DESCRIBE YOUR
BACKGROUND IN NUTRITION"

Type of Nutrition Background	Number of Respondents*	Percent of all Respondents*
Regular college course	97	24.9%
Connected with other college subjects	136	34.9%
Nutrition workshop or in-service training	44	11.3%
Studied nutrition in junior high or high school	210	53.9%
Learned nutrition on own	171	43.9%
Never studied nutrition	22	5.6%

*Note that totals are greater than 390 or 100 percent since teachers could check more than one category.

Teachers were asked to indicate whether they would attend nutrition education courses. The nutrition courses selected are given in order of frequency and the number and percentage of responses in Table IV. The majority of the teachers checked that they would attend a graduate credit course or non-credit workshop or short-course during the year in their areas. About 30 percent of teachers indicated they would not attend a course if offered.

TABLE IV
TEACHERS' RESPONSES TO ITEM 14: "WOULD YOU BE WILLING TO ATTEND THE FOLLOWING NUTRITION EDUCATION COURSES?"

Course	Number of Respondents*	Percent of all Respondents*
Not willing to attend nutrition education courses	142	37.27%
Graduate credit course taught during the year	130	34.03%
Non-credit workshop or short-course during the year	118	30.89%
Graduate credit course taught during the summer	44	11.52%
Non-credit workshop or short-course taught in the summer	28	7.33%

*Note that totals are greater than 390 and 100 percent since teachers could check more than one category.

Teachers' Opinions on Nutrition

The teachers' opinions about the nutrition habits of their students may affect whether they include nutrition as part of the curriculum, as well as the success of nutrition programs.

All of the teachers were asked to estimate the proportion of students who have three well-balanced meals a day. The number and percentages of responses are given in Table V. The teachers were then asked to indicate which meal is most apt to be neglected by the students. These responses are given in Table VI.

TABLE V

TEACHERS' RESPONSES TO ITEM 7: "WHAT PROPORTION OF STUDENTS
IN YOUR CLASSES DO YOU ESTIMATE ACTUALLY HAVE
THREE WELL-BALANCED MEALS A DAY?"

Estimate of Students	Number of Respondents	Percent of all Respondents
Less than 1/4	91	23.8%
1/4 to 1/2	114	29.8%
1/2 to 3/4	94	24.6%
Over 3/4	47	12.3%
No estimate	36	9.4%

The teachers' responses to the number of students who do not have three well-balanced meals a day were broken down as follows: 29.8

percent indicated that one-fourth to one-half of the students do not eat three well-balanced meals; 24.6 percent indicated that one-half to three-fourths of the students do not eat three well-balanced meals; and 23.8 percent of the teachers responded that less than one-fourth of the students do not eat three well-balanced meals a day. Of the responding teachers, 93 percent indicated that breakfast was the meal most frequently neglected by their students. The student forms in the needs assessment study (Baird, 1979) showed that only 27.4 percent of the students did have an adequate diet and that 20 percent of the students did not eat breakfast. It appears that the teachers have a realistic idea of the students' eating habits in their schools.

TABLE VI

TEACHERS' RESPONSES TO ITEM 8: "WHEN STUDENTS DO NOT HAVE THREE WELL-BALANCED MEALS, WHICH OF THE THREE MEALS DO YOU THINK IS MOST APT TO BE NEGLECTED?"

Neglected Meal	Number of Respondents	Percent of all Respondents
Breakfast	360	93.3%
Noon meals	18	4.7%
Evening meals	8	2.1%

Teachers' Attitudes and Opinion
on Nutrition Education

Teachers were asked to indicate the grade level at which nutrition education should be offered. The question had seven possible categories and each teacher was asked to respond to only one category. Table VII shows the number and percentage of respondents at each of the four grade levels (K-3, 4-6, junior high or middle school, and high school) for each of the categories. Two-thirds of the teachers thought nutrition education should be taught at every grade level, with little difference related to the grade levels they were teaching. Of the respondents, 18.4 percent thought nutrition should be taught in the elementary grades (K-3, 4-6). Larger percentages of high school and junior high or middle school teachers thought nutrition should be taught in the elementary grades, as well as middle school only, than did the teachers teaching at the K-3 and 4-6 levels.

Teachers were asked if a guide for integrating nutrition education would be useful. The responses are shown in Table VIII. Teachers surveyed thought that a guide for integrating nutrition would or could be useful in most grade levels.

The teachers were then asked to check whether they agreed or disagreed that undergraduate curricula for all prospective teachers should include nutrition education. The responses by grade level are shown in Table IX. Of the teachers responding, 57 percent stated that they agreed or strongly agreed that nutrition should be included in undergraduate curricula. Twenty-three percent of the teachers disagreed or strongly disagreed.

TABLE VII

TEACHERS' RESPONSES TO ITEM 10: "AT WHAT GRADE LEVEL DO YOU
THINK NUTRITION EDUCATION SHOULD BE OFFERED?"

Recommended Grades for Nutrition Teaching	Respondents by Grade Level Taught				
	K-3	4-6	Jr. High	High	Total
At every grade level	71 (18.9%)	66 (17.6%)	46 (12.2%)	69 (18.4%)	252 (67.0%)
K-3	7 (1.9%)	5 (1.3%)	1 (0.3%)	12 (3.2%)	25 (6.7%)
4-6	4 (1.1%)	3 (0.8%)	17 (4.5%)	20 (5.3%)	44 (11.7%)
Junior high or middle school	2 (0.5%)	1 (0.3%)	12 (3.2%)	11 (2.9%)	26 (6.9%)
High school	0 (0.0%)	0 (0.0%)	1 (0.3%)	3 (0.8%)	4 (1.1%)
Not school's role	1 (0.3%)	1 (0.3%)	1 (0.3%)	2 (0.5%)	5 (1.3%)
No opinion	0 (0.0%)	0 (0.0%)	5 (1.3%)	8 (2.1%)	13 (3.5%)
Other	2 (0.5%)	0 (0.0%)	3 (0.8%)	2 (0.5%)	7 (1.9%)

TABLE VIII

TEACHERS' RESPONSES TO ITEM 11: "IF THE STATE DEPARTMENT OF EDUCATION
WOULD PROVIDE A GUIDE FOR INTEGRATING NUTRITION EDUCATION INTO
THE CURRICULUM, WOULD IT BE USEFUL TO YOU?"

Possible Responses	Respondents by Grade Level Taught				Total
	K-3	4-6	Jr. High	High	
Would be useful	40 (10.4%)	28 (7.3%)	13 (3.4%)	23 (6.0%)	104 (26.9%)
Could be useful	46 (11.9%)	41 (10.6%)	46 (11.9%)	48 (12.4%)	181 (46.9%)
Would not be useful	1 (0.3%)	9 (2.3%)	31 (8.0%)	60 (15.5%)	101 (26.2%)

TABLE IX

TEACHERS' RESPONSES TO ITEM 12: "IN YOUR OPINION, SHOULD UNDERGRADUATE CURRICULA FOR ALL PROSPECTIVE TEACHERS INCLUDE NUTRITION EDUCATION?"

Opinions	Respondents by Grade Level Taught				Total
	K-3	4-6	Jr. High	High	
Strongly agree	13 (3.4%)	13 (3.4%)	10 (2.6%)	12 (3.1%)	48 (12.4%)
Agree	47 (12.1%)	44 (11.4%)	29 (7.5%)	55 (14.2%)	175 (45.2%)
No opinion	15 (3.9%)	13 (3.4%)	15 (3.9%)	29 (7.5%)	72 (18.6%)
Disagree	10 (2.6%)	6 (1.6%)	27 (7.0%)	31 (8.0%)	74 (19.1%)
Strongly disagree	2 (0.5%)	2 (0.5%)	7 (1.8%)	7 (1.8%)	18 (4.7%)

When asked to indicate whether they thought parents would be interested in learning about nutrition, the teachers responded as shown in Table X. About 26 percent agreed that the parents would be interested in learning about nutrition, while 22 percent did not think that the parents would be interested.

TABLE X
TEACHERS' RESPONSES TO ITEM 15: "DO YOU AGREE THAT PARENTS
IN YOUR COMMUNITY WOULD BE INTERESTED IN
LEARNING MORE ABOUT NUTRITION?"

Opinions	Number of Respondents	Percent of all Respondents
Strongly agree	4	1.0%
Agree	97	24.9%
No opinion	84	21.5%
Disagree	78	20.0%
Strongly disagree	8	2.1%
Do not know	119	30.5%

Teachers were asked to indicate the best topics for parent nutrition education programs. These responses are given in Table XI in order of frequency with number and percentages of respondents indicated. The best topics for parent nutrition programs stated by the teachers were "how food affects physical development," "advantages of eating a good breakfast," and "food needs at different ages."

TABLE XI

TEACHERS' RESPONSES TO ITEM 16: "WHICH OF THE FOLLOWING WOULD BE THE BEST TOPICS TO COVER IN PARENT NUTRITION EDUCATION PROGRAMS?"

Topics	Number of Respondents*	Percent of all Respondents*
How food affects physical development	273	71.28%
Advantages of eating a good breakfast	251	65.54%
Food needs at different ages	249	65.01%
Selection of snack foods	208	54.31%
Advantages of eating a good lunch	155	40.47%
Special diets and weight control	152	39.69%
Food choices of school age children	121	31.59%
School food service contributions to nutrition	97	25.33%
Organic foods	32	8.36%
No opinion	18	4.70%

*Note the totals are greater than 390 and 100 percent since teachers could check more than one category.

The next question on the teachers' questionnaire asked them to check the methods they thought would be most effective in presenting parent nutrition education programs. These methods are shown in Table XII in order of frequency chosen with number and percentage of respondents. The three statements that the most teachers thought would be effective are "materials and information taken home by students to parents," "by articles in newspapers," and "through parent teacher organizations."

Comments on Nutrition Education

The teachers were asked to make comments on nutrition education, the school lunch program, and the breakfast program.

One hundred sixty-three teachers of the 390 respondents did make comments on these topics. The comments listed were basically concerned with the need for involvement of parents in nutrition education, the benefits of the school lunch program, and ways the breakfast program would be beneficial if it were started in their schools. Teachers comments are given in Appendix B, page 80.

The Teaching of Education

Teachers were asked to indicate whether they had taught nutrition education in their classes the previous year. The results of this question are presented in Table XIII by the grade levels of the teachers. The data show that one-third of the teachers surveyed taught nutrition in their classes, while two-thirds did not. Most of the nutrition teaching was in the elementary grades (K-3, 4-6).

TABLE XII

TEACHERS' RESPONSES TO ITEM 17: "INDICATE THE METHOD(S) YOU
THINK WOULD BE EFFECTIVE FOR PRESENTING A PARENT
NUTRITION EDUCATION PROGRAM"

Methods	Number of Respondents*	Percent of all Respondents*
Materials and information taken home by students to parents	203	53.14%
By articles in newspapers or magazines	160	41.88%
Through parent-teacher organizations	134	35.08%
In special classes for parents of students	106	27.75%
On educational television	88	23.04%
Parents would not be interested	69	18.06%
In special workshops presented by universities or State Department of Education	56	14.66%

*Note the totals are greater than 390 and 100 percent since teachers could check more than one category.

TABLE XIII

TEACHERS' RESPONSES TO ITEM 18: "DID YOU TEACH A NUTRITION UNIT IN ANY OF YOUR CLASSES LAST SCHOOL YEAR?"

Grade Level Teachers Teach	Number of "YES" Respondents	Percent "YES" Respondents	Number of "NO" Respondents	Percent "NO" Respondents
K-3	58	14.9%	30	7.7%
4-6	43	11.0%	35	9.0%
Junior High/ Middle School	12	3.1%	78	20.0%
High School	17	4.4%	117	30.0%
TOTAL	130	33.3%	260	66.7%

These 130 teachers were asked to indicate the grade level at which they taught nutrition the previous year. The results of this question are presented in Table XIV. Most of the teachers who taught nutrition taught in the elementary grades. Of those responding, approximately one-half of the teachers taught nutrition at grade levels K-3, and about one-third of the teachers taught nutrition at the 4-6 grade levels. These findings are discussed further with hypothesis 3a, page 57.

The teachers who taught nutrition were asked to indicate the hours spent. This information is shown in Table XV. Most of the teachers surveyed who teach nutrition spent from 3-10 hours on the nutrition units. Approximately one-half of the teachers taught nutrition five or less hours in the year.

TABLE XIV

TEACHERS' RESPONSES TO ITEM 19: "INDICATE THE GRADE LEVEL
TO WHICH YOU TAUGHT NUTRITION LAST YEAR"

Grade Levels	Number of Respondents*	Percent of all Respondents*
K-3 (Elementary)	63	48.84%
4-6 (Elementary)	42	32.56%
7-9 or 6-8 (Jr. High or Middle School)	13	10.08%
10-12 or 9-12 (High School)	16	12.40%

*Note the totals may be greater than 130 and 100 percent since teachers could check more than one category.

TABLE XV

TEACHERS' RESPONSES TO ITEM 20: "APPROXIMATELY HOW MANY HOURS
OF NUTRITION EDUCATION DID YOU TEACH LAST YEAR?"

Approximate Hours	Respondents by Grade Level Taught				Total
	K-3	4-6	Jr. High	High	
0-2 Hours	6 (4.6%)	2 (1.5%)	1 (0.8%)	0 (0.0%)	9 (6.9%)
3-5 Hours	25 (19.2%)	16 (12.3%)	5 (3.9%)	8 (6.2%)	54 (41.5%)
6-10 Hours	25 (19.2%)	16 (12.3%)	3 (2.3%)	4 (3.1%)	48 (36.9%)
More than 10 Hours	2 (1.5%)	9 (6.9%)	3 (2.3%)	5 (3.9%)	19 (14.6%)

The teachers were asked to check the type of course in which they taught nutrition. As shown in Table XVI, 64 percent of the teachers who taught nutrition did so by integrating it into another course.

TABLE XVI
TEACHERS' RESPONSES TO ITEM 22: "IN WHAT TYPE
COURSE DID YOU TEACH NUTRITION?"

Type of Course	Number of Respondents	Percent of all Respondents
As a separate course	17	13.2%
Integrated into another course	83	64.3%
Both	29	22.5%

The teachers who taught nutrition as an integrated subject matter were asked to check the courses in which it was offered. As shown in Table XVII, the three courses most frequently indicated were general health education, elementary science, and elementary enrichment units.

The biological or social topics emphasized in the nutrition unit are given in Table XVIII in order of frequency with number and percentage of respondents. The five most emphasized topics in nutrition education units were "Eating A Well-Balanced Diet" (122), "Positive Results of Good Nutrition" (101), "Importance of A Good Breakfast" (98), "Making Food Choices" (98), and "Individual Food Habits" (88).

TABLE XVII

TEACHERS' RESPONSES TO ITEM 23: "IF YOU TAUGHT NUTRITION AS AN INTEGRATED SUBJECT MATTER, IN WHICH COURSE WAS IT OFFERED?"

Courses	Number of Respondents*	Percent of all Respondents*
General Health Education	59	48.76%
Elementary Science	30	24.79%
Elementary Enrichment Unit	28	23.14%
Other	15	12.40%
Reading	13	10.74%
Social Studies	13	10.74%
Home Economics	9	7.44%
English Language Art	6	4.96%
Art	6	4.96%
Other Science	6	4.96%
Physical Education	6	4.96%
Biology	3	2.48%
Physiology	3	2.48%
Chemistry	1	0.83%

*Note the totals are greater than 130 and 100 percent since the teachers could check more than one category.

TABLE XVIII

TEACHERS' RESPONSES TO ITEM 25: "WHICH OF THE FOLLOWING BIOLOGICAL OR SOCIAL TOPICS DID YOU EMPHASIZE IN YOUR NUTRITION UNITS?"

Topics	Number of Respondents*	Percent of all Respondents*
Eating a well-balanced diet	122	93.85%
Positive results of good nutrition	101	77.69%
Importance of a good breakfast	98	75.38%
Making food choices	98	75.38%
Individual food habits	88	67.69%
Which foods are sources of nutrients	77	59.23%
Source of food	62	47.69%
How food is digested	48	36.92%
Function of nutrients	46	35.38%
Results of deficiencies of nutrients	40	30.77%
How food nourishes cells	33	25.38%
Results of overeating	22	16.92%
Problems of hunger in world	20	15.38%
Cultural food patterns	13	10.00%
Weight reduction diets	11	8.46%
Importance of food in history	8	6.15%
Other	0	0.00%

*Note the totals are greater than 130 and 100 percent since teachers could check more than one category.

Materials and Resources Used by Teachers

The teachers who taught nutrition were asked to indicate which guides they used in teaching. The guides used are given in Table XIX. Self-developed curriculum was used by 42.6 percent of the respondents teaching nutrition.

TABLE XIX

TEACHERS' RESPONSES TO ITEM 21: "WHICH GUIDES DID YOU USE IN TEACHING NUTRITION?"

Type of Guide	Number of Respondents*	Percent of all Respondents*
Local School District Curriculum	30	23.3%
Oklahoma State Curriculum Guide	19	14.7%
Other State Guides	21	16.3%
Curriculum Developed by Myself	55	42.6%
Curriculum Developed by Myself and Others	25	19.4%
Other	33	25.6%
None	1	0.8%

*Note the totals are greater than 130 and 100 percent since teachers (who teach nutrition education) could check more than one category.

The resource persons the teachers used in teaching nutrition are given in Table XX, in order of frequency with number and percentage of respondents. From the frequency of the listings it appears that the three resource persons used most by teachers for nutrition education are Dairy Council consultants (29), nurse (10), and other teachers within the school (10).

TABLE XX

TEACHERS' RESPONSES TO ITEM 24: "WHAT RESOURCE PERSON(S)
WAS/WERE USED IN YOUR NUTRITION EDUCATION UNIT?"

Resource Person	Number of Respondents*	Percent of all Respondents*
None	72	55.81%
Dairy Council Consultant	29	22.48%
Nurse	10	7.75%
Other Teachers Within the School	10	7.75%
County Extension Home Economist	9	6.98%
Home Economics Teacher	6	4.65%
Other	5	3.88%
Public Health Nutritionist	4	3.10%
University or College Nutrition Teacher	4	3.10%
School Lunch Supervisor	3	2.33%

*Note the totals are greater than 130 and 100 percent since teachers could check more than one category.

The teachers were then asked to indicate the success of various nutrition teaching methods. A copy of the questions with the responses of teachers in percentages is given in Appendix B, page 82. The three most successful teaching methods listed were classification of foods according to four food groups (93.8%), discussions (87.9%), and discussing how much of various foods are needed for growth and health (84.4%).

Testing of Hypotheses

The following hypotheses were postulated for this study. They were tested by using Chi square analysis and analysis of variance.

Hypothesis 1

H_1 : There is no significant relationship between the number of successful teaching methods utilized and the nutrition background of the teacher.

The first hypothesis examines the relationship, if any, between the number of successful teaching methods used (question 26) and the nutrition background of the teacher (question 13). An analysis of variance table was computed to determine the relationship between the total number of successful methods and the teacher's nutrition background level. In order to fill all the cells, the nutrition background was grouped into three levels. Level 1 included "regular college course in food and/or nutrition," "studied nutrition in connection with other college subject," and "attended a nutrition workshop and/or inservice training course." Level 2 included "studied nutrition in junior high and/or high school" and "learned about nutrition on my own." The third level

was "never studied nutrition." Only the teachers who had taught nutrition the previous year were included in the analysis.

As shown in Table XXI, there was no significant relationship between the number of successful teaching methods utilized and the level of nutrition background of the teachers. Therefore, hypothesis 1 is not rejected.

TABLE XXI
ANALYSIS OF VARIANCE OF THE NUMBER OF SUCCESSFUL
TEACHING METHODS
USED

Source	df	ss	ms	F	Significance Level
Total	389	8410.26			
Groups	6	183.36	30.56	1.07	P > .05
Districts	26	742.85	28.57	1.04	P > .05
Nutrition Level	46	1264.66	27.49	1.374	.05 < P < .10
Teacher	311	6219.39	19.998		

Hypothesis 2

H₂: There is no significant relationship between the grade level taught and the grade level in which the teacher perceives nutrition education should be offered.

The second hypothesis examines the relationship, if any, between the grade level the teacher is teaching (question 1) and the grade level in which the teachers perceive nutrition should be offered (question 10). Since question one allowed the teacher to check more than one answer, the lowest grade level checked was the grade level used in the analysis.

A Chi square test was used to analyze the data relating to this hypothesis. In order to fill all of the cells, the "other," "not the school's role," and "no opinion" were combined for question 10. Also the "K-3" and "4-6" were combined into a single category for elementary grades, and then the "Junior High" and "High School" were combined into a category for secondary grades.

A significant relationship was found between the grade level being taught by the teacher and where the teachers perceived nutrition should be taught. The observed significance level found was $p = 0.0009$, therefore, hypothesis two is rejected.

Sixty-seven percent of the teachers perceived nutrition education should be taught at every grade level. Of the other teachers, the largest difference appeared with 7.45 percent of the high school teachers indicating that nutrition should be taught in elementary grade levels (K-3, 4-6) and only 2.93 percent of the high school teachers indicating nutrition education should be taught at the secondary grade level (junior high, high school). This compared with 2.93 percent of the elementary teachers, who indicated nutrition education should be taught at the elementary grade levels and 1.06 percent who thought nutrition education should be taught at the secondary grades. Most of the teachers that indicated either the elementary grade level or secondary level, did indicate the elementary level as the preference of where nutrition education should

be offered (18.35%). Table XXII shows the responses of the teachers by the grade level they were teaching.

TABLE XXII
LEVEL TEACHERS PERCEIVE NUTRITION SHOULD BE TAUGHT,
ACCORDING TO THE GRADE THE TEACHERS TEACH

Presently Teach	Every Grade Level	K-3 and/or 4-6	Jr. High and/or High School	Not School's Role, No opinion, Other	Number of Respondents
High School	60	28	11	8	107
Jr. High Jr. High/ High School	54	22	11	11	98
4-6 4-6/Jr. High	63	8	4	3	78
K-3 K-3/4-6	75	11	4	3	93
Number Respondents	252	69	30	25	376
Percent Respondents	67.02%	18.35%	7.98%	6.65%	100.00%

Hypothesis 3

H₃: There is no significant relationship between the number of hours of nutrition taught the previous year and (a) the grade level where nutrition was taught and (b) the courses taught.

The third hypothesis examines the relationship, if any, between the number of hours of nutrition taught the previous year and the courses taught. The data were also analyzed to determine the relationship, if any, between the number of hours of nutrition taught the previous year and the grade level where nutrition was taught. The necessary data was extracted from questions 19, 20, and 23.

A Chi square test of significance was used to test the hypothesis. Again the cells were collapsed in order to assure the validity of the Chi square method. On question 19, the teacher was allowed to check more than one grade level. For the analysis the lowest grade level marked was utilized. Question 20 was divided into two levels: "less than or equal to five hours" and "more than five hours."

No significant relationship was found between the grade level where nutrition was taught and the number of hours it was taught. The percentage of hours spent teaching nutrition, broken down by the grade level where nutrition was taught, is presented in Table XXIII. The teachers who did teach nutrition were split in half with one-half teaching less than or equal to five hours in the year. Most of the nutrition information was taught at the K-3 or K-3/4-6 combined levels (48.84%), while the 4-6 or 4-6/junior high combined levels followed with 31.01 percent. Hypothesis 3a is not rejected.

The second part of this hypothesis utilizes the information in questions 20 and 23. Again the cells were collapsed to make the Chi square test valid. The data from question 20 was grouped in the same way as for the previous test, ("less than or equal to five hours" and "more than five hours"). Question 23 was broken down into five

categories which were home economics, physical education and health, science, liberal arts, and elementary.

TABLE XXIII

HOURS SPENT TEACHING NUTRITION ACCORDING TO GRADE LEVEL TAUGHT

Level Taught	Less than or Equal to Five Hrs.	More than Five Hrs.	Number of Respondents
High School	5.43%	5.43%	14
Jr. High Jr. High/High School	3.88%	5.43%	12
4-6 4-6/Jr. High	13.18%	17.83%	40
K-3 K-3/4-6	25.58%	23.26%	63
TOTALS	48.07%	51.95%	129

The Chi square analysis showed an observed significance level of 0.025; therefore, a significant relationship was found between the number of hours of nutrition being taught and the class in which nutrition information was presented. Hypothesis 3b is rejected.

As can be seen in Table XXIV, the classes with the most nutrition education were home economics, physical education and health, and science.

TABLE XXIV
HOURS SPENT TEACHING NUTRITION BY CLASSES IN
WHICH NUTRITION WAS TAUGHT

Class Groupings	Less than or Equal to Five Hours	More than Five Hours	Number of Respondents
Home Economics	30	31	61
Physical Education and Health	13	7	20
Science	11	9	20
Liberal Arts	0	9	20
Elementary	6	4	10
Number of Respondents	60	60	120

Hypothesis 4

H_4 : There is no significant relationship between the importance of school foodservice as perceived by educators and whether or not they taught nutrition.

The fourth hypothesis examines the relationship, if any, between the importance of school foodservice as perceived by the teachers (question 4) and whether or not the teachers taught nutrition the previous year (question 13). Table XXV gives the distribution of responses according to whether the teachers marked "very important," "moderately important," or "not important." The table also breaks each level of question 4 into whether the respondents did or did not teach nutrition the previous year.

TABLE XXV

TEACHERS' PERCEIVED IMPORTANCE OF REASONS FOR SCHOOL LUNCH BY WHETHER
THE TEACHERS TAUGHT NUTRITION EDUCATION THE PREVIOUS YEAR*

Taught Nutrition	Convenience for Parents		Means of Meeting at Least 1/3 of Students' Needs		Learning Lab for Nutrition Education		Means of Pro- viding a Meal for Children of Working Mothers		Provide Free Meals for Economically Deprived Children		To Help Students Form Good Food Habits	
	A		B		C		D		E		F	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Not Impor- tant	55	21	1	3	53	18	27	12	10	7	13	6
Moderately Important	145	64	42	15	142	77	123	59	93	43	104	40
Very Impor- tant	54	41	211	112	57	30	105	54	153	77	138	81
Subtotal	254	126	254	130	252	125	255	125	256	127	255	127
Total	380		384		377		380		383		382	

*Teachers who did not teach nutrition--No; Teachers who did--Yes.

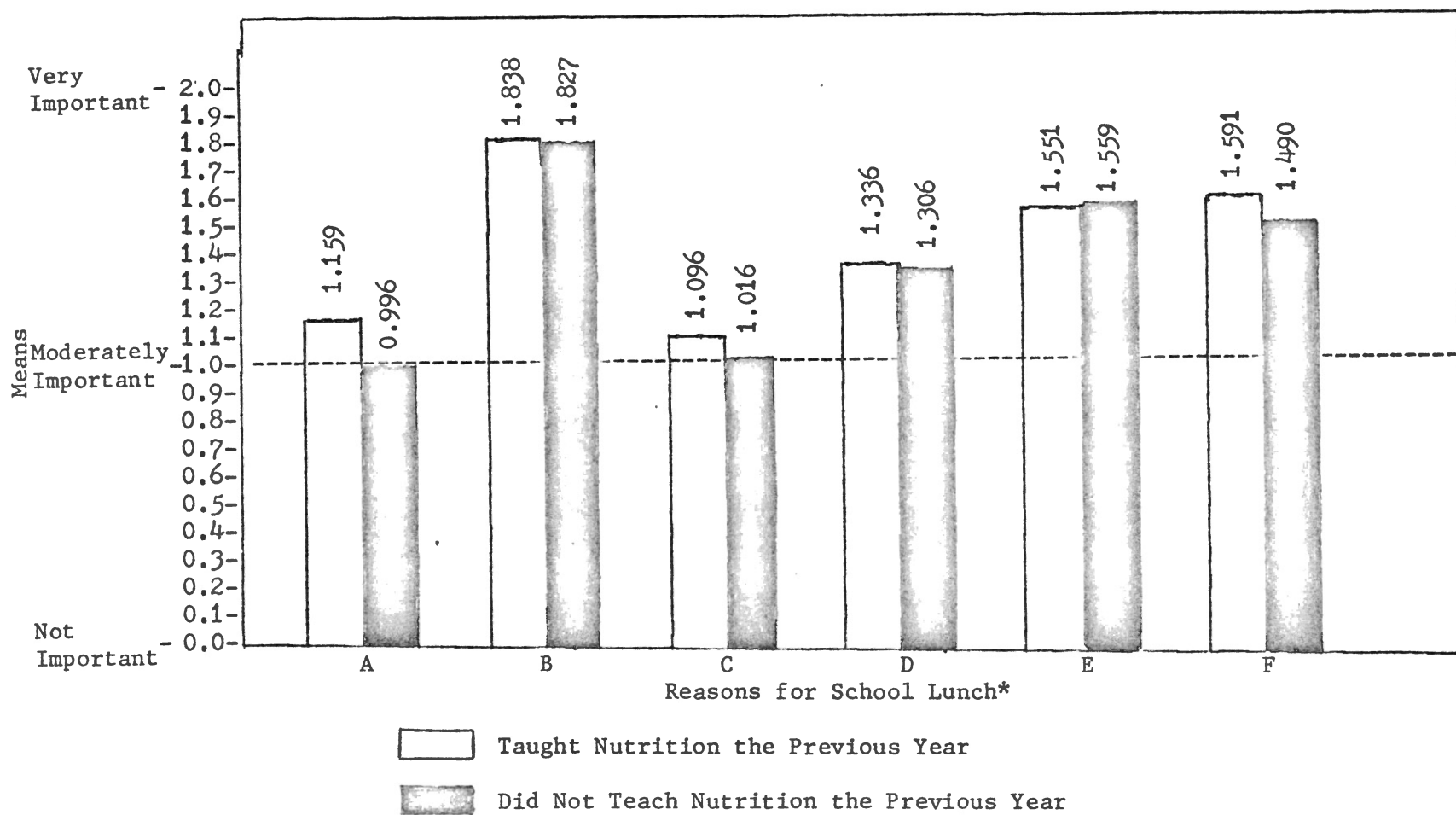
F tests were used to evaluate the importance of the reasons for the school lunch. The only significant reason was "A," "a convenience for parents." The observed significance level is $P = 0.0254$. The average responses for importance of reasons for school lunch (with 0 = not important, 1 = moderately important, and 2 = very important) by whether or not the teachers taught nutrition the previous year are shown in Figure 1. Those teachers who taught nutrition thought the reason, "is convenience for parents," was moderately to very important, while those teachers who did not teach nutrition thought the reason was moderately to not important. The other five reasons that were rated by the teachers were all moderately to very important no matter whether the teachers taught nutrition or not. Therefore, the fourth hypothesis is partially rejected--for the "A" reason only.

Summary

The questionnaire was completed by 390 teachers representing 33 school districts, grades K-12. Only one-fourth of the teachers had completed a college course in nutrition and over half had studied nutrition in junior high or high school. However, 57 percent of the teachers agreed that nutrition should be required in undergraduate curricula.

When asked if they would attend a nutrition course, nearly 70 percent stated they would attend one if offered when and where it is convenient. Approximately one-fourth of the teachers thought parents would be interested in learning about nutrition, while one-fifth disagreed with the statement.

Most (67%) teachers thought nutrition should be offered at every grade level. Only one-third of the teachers had taught nutrition the



*See page 60 for categories.

Figure 1. Average of Responses for Importance of Reasons for School Lunch by Whether the Teachers Taught Nutrition Education the Previous Year

previous year. Most of the nutrition teaching was in the elementary grades, with about one-half of the teachers having taught nutrition five or less hours the previous year. Sixty-four percent of the teachers utilized an integrated course.

There was no relationship between the number of successful teaching methods used and the nutrition background of the teacher. A relationship was found between the grade level the teacher taught and where the teacher perceived nutrition should be taught.

No relationship was found between the number of hours of nutrition taught and the grade level where it was taught. A relationship was found between the hours of nutrition taught and the course in which it was taught. The most nutrition was taught in home economics, physical education and health, and science.

In general there was only a partial relationship found between the teachers' perceived importance of school foodservice and whether or not they taught nutrition.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this study was to identify the nutrition education background of public school teachers in Oklahoma and their self-perceived role in nutrition education. This study was completed to partially fulfill the requirements of amendments passed for the Child Nutrition Act of 1966 by the 95th Congress, Public Law 95-166, which became effective November 10, 1977.

A survey was completed of Oklahoma public school teachers (K-12) in order to obtain the nutrition education background and the teacher's self-perceived role in nutrition education. The final number of usable questionnaires was 390 or 82.63 percent of the sample group of 472 teachers from 33 selected districts.

One-third of the teachers sampled taught nutrition the previous year, with the most nutrition teaching occurring in the elementary grades. Approximately one-half of the teachers who taught nutrition did so five or fewer hours in the year. Sixty-four percent taught nutrition by integrating it into other courses.

All teachers were asked where nutrition education should be offered. Of the 390, two-thirds thought nutrition should be offered at every grade level.

Although only one-fourth of the teachers enrolled in a college course in nutrition, 57 percent of the teachers indicated they thought a nutrition course should be required in the undergraduate curriculum of educators. Approximately 70 percent of the teachers surveyed stated they would be willing to attend a nutrition course, with the majority wanting the course during the year in a nearby location.

The teachers commented that there needed to be more parent involvement in nutrition education. One-fourth of the teachers thought parents would be interested in learning about nutrition.

No significant relationship was found between the number of successful teaching methods used by teachers who taught nutrition education and their nutrition background.

A significant relationship ($P=0.0009$) was found between the grade level being taught by the teacher and where the teacher perceived nutrition should be offered. Sixty-seven percent of the total teachers thought nutrition should be offered at every grade level. However, when broken down, a significance appears with a larger percentage of high school teachers indicating nutrition should be taught at the elementary grade levels than elementary teachers who indicated nutrition should be offered at the secondary grade level.

No significant relationship was found between the grade level where nutrition was taught and the number of hours it was taught.

A significant relationship ($P=0.025$) was found between the number of hours of nutrition taught and the class in which the information was presented. The most nutrition information was presented in home economics, physical education and health, and science.

A significant relationship was found for the "A" reason for school lunch as perceived by the educators, and whether or not they taught nutrition the previous year. A significance ($P = 0.0254$) was found for the reason "A," "a convenience for parents." Those teachers who taught nutrition thought the reason was moderately to very important, and those teachers who did not teach nutrition thought it was moderately to not important. The other five reasons given for ranking by the teachers showed no significance.

Recommendations Regarding Nutrition Education

Many of the teachers have not had a regular college course in nutrition and the majority showed an interest in attending one. For this reason the colleges and universities should strongly consider requiring a nutrition course in the undergraduate program for educators. Also the universities should offer courses and or workshops on nutrition education to help fulfill the needs of the teachers who are willing to teach nutrition information to their students. These courses or workshops need to emphasize ways to integrate nutrition information into all subject areas, rather than the subjects that are considered the traditional courses. The teachers need to be made aware that resources are available for their use and how to utilize the resource persons in teaching nutrition education.

An effort should be made to incorporate nutrition information at every grade level. It may be helpful to create curriculum guides for teaching nutrition to alleviate repetition from one grade level to the next and still have the program coordinated so that all information is presented.

The involvement of parents in the nutrition education program is of importance. The learning of nutrition and development of eating habits start at home. The person who has the responsibility of buying and preparing the food has to be informed. If parents are properly informed on nutrition information being presented to their children, the information can be reinforced through food practices in the home. Parents can be involved through the parent-teacher organizations, school lunch programs, and classes or workshops on nutrition.

The school foodservice has to be recognized as an important aspect of the students' nutrition learning. The school foodservice needs to be involved in the in-service meetings along with the teachers to help coordinate the nutrition programs. The school lunchroom can serve as a laboratory to show the students the different aspects of nutrition and reinforce classroom presentations. It is very important that the school lunch offer a pleasant atmosphere which will provide the students with a positive idea of the importance of nutrition and make it more interesting for the student's involvement.

Recommendations for Further Study

1. Information needs to be gathered to determine what would be best included in a curriculum guide developed to help in the teaching of nutrition.
2. Information needs to be gathered to determine if the teachers will cooperate in using the guide.
3. A survey could be beneficial to discover what types of information would be appealing to the teachers and parents in nutrition courses or workshops if offered.

4. A state-wide survey to determine a list of available nutrition education materials and information including films, books, pamphlets, and agencies would be extremely useful to those teachers who are interested in teaching nutrition information.

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APPENDIX A

QUESTIONNAIRE

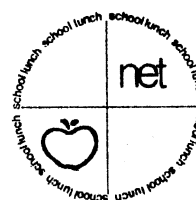
TEACHER'S FORM

OKLAHOMA NUTRITION EDUCATION SURVEY 1978-79*

A COOPERATIVE PROJECT OF
OKLAHOMA STATE DEPARTMENT OF EDUCATION - SCHOOL LUNCH SECTION

AND

OKLAHOMA STATE UNIVERSITY - DIVISION OF HOME ECONOMICS
DEPARTMENT OF FOOD, NUTRITION, AND INSTITUTION ADMINISTRATION



County	District Name	School Name
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INSTRUCTIONS - This survey consists of a number of questions and statements which have no right or wrong answers. Your personal opinion is needed. Carefully read each question or statement and decide what you think about it. CHECK THE CORRESPONDING LINE TO THE LEFT OF YOUR RESPONSE. ERASE COMPLETELY ANYTHING YOU WISH TO CHANGE. Your responses will remain anonymous. The name of your school and district area are for record keeping purposes only. You or your school will NOT be identified in any manner in the reporting of data.

For this survey, NUTRITION EDUCATION is defined as "the knowledge of food, how the body uses it, and the application of this knowledge to the formation of good eating habits."

SECTION A.

<p>1. Please mark the grade level you teach <u>this</u> year: (Check all that apply)</p> <p><input type="checkbox"/> K-3 (Elementary)</p> <p><input type="checkbox"/> 4-6 (Elementary)</p> <p><input type="checkbox"/> Jr. High or Middle School</p> <p><input type="checkbox"/> High School</p> <p>2. What subjects do you teach? (Check all that apply)</p> <p><input type="checkbox"/> General elementary curriculum</p> <p><input type="checkbox"/> Reading</p> <p><input type="checkbox"/> General health education</p> <p><input type="checkbox"/> Biology</p> <p><input type="checkbox"/> Chemistry</p> <p><input type="checkbox"/> Home Economics</p> <p><input type="checkbox"/> Physical Education</p> <p><input type="checkbox"/> Social Studies</p> <p><input type="checkbox"/> English language arts</p> <p><input type="checkbox"/> Art</p> <p><input type="checkbox"/> Elementary science</p> <p><input type="checkbox"/> Physiology</p> <p><input type="checkbox"/> Other Science _____</p> <p><input type="checkbox"/> Other _____</p> <p>3. Do you eat the school lunch as provided for the students? (Check <u>one</u>)</p> <p><input type="checkbox"/> Every day</p> <p><input type="checkbox"/> 3-4 times per week</p> <p><input type="checkbox"/> 1-2 times per week</p> <p><input type="checkbox"/> Less often than once per week</p>	<p>4. Listed here are several reasons for providing a school lunch program. What, in your opinion, is the importance of each? (Check one for each reason)</p> <table border="1"> <thead> <tr> <th>Very Important</th> <th>Moderately Important</th> <th>Not Important</th> <th></th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>A. A convenience for parents</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>B. A means of meeting at least 1/3 of students' daily dietary needs</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>C. A learning laboratory for nutrition education</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>D. A means of providing a meal for children of working mothers</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>E. To provide free meals for economically deprived students</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>F. To help students form good food habits</td> </tr> </tbody> </table> <p>5. What was your average school lunch participation in November, 1978? (Check one) (Check with principal or cafeteria manager)</p> <p><input type="checkbox"/> 0-20% <input type="checkbox"/> 61-80%</p> <p><input type="checkbox"/> 21-40% <input type="checkbox"/> 81-100%</p> <p><input type="checkbox"/> 41-60%</p> <p>6. Is it part of your job responsibilities to supervise students at lunchtime?</p> <p><input type="checkbox"/> Everyday</p> <p><input type="checkbox"/> Less than everyday, but at least once a week</p> <p><input type="checkbox"/> Less than once a week</p> <p><input type="checkbox"/> Never</p>	Very Important	Moderately Important	Not Important		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	A. A convenience for parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	B. A means of meeting at least 1/3 of students' daily dietary needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	C. A learning laboratory for nutrition education	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	D. A means of providing a meal for children of working mothers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E. To provide free meals for economically deprived students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F. To help students form good food habits
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*Funded by the Oklahoma State Department of Education, School Lunch Section, and the United States Department of Agriculture. Portions of this survey were adapted from the Wisconsin Nutrition Education Survey, 1974, funded by USDA Food and Nutrition Service.

7. What proportion of students in your classes do you estimate actually have three well-balanced meals a day? (Check one)
- Less than $\frac{1}{4}$
- $\frac{1}{4}$ to $\frac{1}{2}$
- $\frac{1}{2}$ to $\frac{3}{4}$
- Over $\frac{3}{4}$
- No estimate
8. When students do not have three well-balanced meals, which of the three meals do you think is most apt to be neglected? (Check one)
- Breakfast
- Noon meals
- Evening meals
9. In your opinion, do the vending machines in your school: (Check one)
- Make no difference in students' nutritional habits
- Discourage students from eating nutritious foods
- Contribute to students' nutritional well-being
- School has no vending machines available to students
10. At what grade level do you think nutrition education should be offered? (Check one)
- At every grade level
- In K-3 (Elementary)
- In 4-6 (Elementary)
- Junior high or middle school
- Senior high school
- This is not the school's role
- No opinion
- Other _____
11. If the State Department of Education would provide a guide for integrating nutrition education into the curriculum, would it be useful to you? (Check one)
- Would be useful
- Could be useful
- Would not be useful
12. In your opinion, should undergraduate curricula for all prospective teachers include nutrition education? (Check one)
- Strongly Agree
- Agree
- No opinion
- Disagree
- Strongly disagree
13. Describe your background in nutrition. (Check all that apply)
- Took a regular college course in food and/or nutrition
- Studied nutrition in connection with other college subjects
- Attended a nutrition workshop and/or inservice training course
- Studied nutrition in junior high and/or high school
- Learned about nutrition on my own
- Never studied nutrition.
14. Would you be willing to attend the following nutrition education courses? (Check all that apply)
- Graduate credit course taught in summer school
- Graduate credit course taught in your area during the year
- Non-credit workshop or short course taught in summer school
- Non-credit workshop or short course taught in your area during the year
- I would not be willing to attend a nutrition education course
15. Do you agree that parents in your community would be interested in learning more about nutrition? (Check one)
- Strongly Agree
- Agree
- No opinion
- Disagree
- Strongly disagree
- Do not know
16. Which of the following would be the best topics to cover in parent nutrition education programs? (Check all that apply)
- The advantages of eating a good breakfast
- The advantages of eating a good lunch
- Food needs at different ages
- Selection of snack foods
- How food affects physical development
- Food choices of school age children
- School food service contributions to nutrition
- Organic foods
- Special diets and weight control
- No opinion
17. Indicate the method(s) you think would be effective for presenting a parent nutrition education program. (Check all that apply)
- Through parent-teacher organizations
- On educational television
- In special classes for parents of students
- By articles in newspapers or magazines
- In special workshops presented by universities or State Department of Education
- Materials and information taken home by students to parents
- Parents would not be interested

SECTION B.

18. Did you teach a nutrition unit in any of your classes last school year? (Check one)
 No (If no, proceed to Section C)
 Yes (If yes, go on to the next question)
19. Indicate the grade level to which you taught nutrition last year. (Check all that apply)
 K-3 (Elementary)
 4-6 (Elementary)
 7-9 or 6-8 (Jr. High or Middle School)
 10-12 or 9-12 (High School)
20. Approximately how many hours of nutrition education did you teach last year? (Check one)
 0-2 hours
 3-5 hours
 6-10 hours
 more than 10 hours
21. Which guides did you use in teaching nutrition? (Check all that apply)
 Local school district curriculum
 Oklahoma State curriculum guides
 Other state guides (specify) _____
 Curriculum developed by myself
 Curriculum developed by myself and others
 Other (specify) _____
 None
22. In what type course did you teach nutrition? (Check all that apply)
 As a separate course
 Integrated into another course
 Both
23. If you taught nutrition as an integrated subject matter, in which course was it offered: (Check all that apply)
 Reading
 English language arts
 Mathematics
 Art
 General health education
 Elementary science
 Biology
 Physiology
 Chemistry
 Other science
 Home Economics
 Physical education
 Social studies
 Elementary enrichment unit
 Other (specify) _____

24. What resource person(s) was/were used in your nutrition education unit? (Check all that apply)
 Home Economics teacher
 Nurse
 School lunch supervisor
 Dairy Council Consultant
 Public Health Nutritionist
 County Extension Home Economist
 University or college nutrition teacher
 Other teachers within the school
 Other (specify) _____
 None
25. Which of the following biological or social topics did you emphasize in your nutrition unit? (Check all that apply)
 Source of food
 Cultural food patterns
 Individual food habits
 Importance of food in history
 Making food choices
 Problems of hunger in world
 Eating a well-balanced diet
 Importance of a good breakfast
 Weight reduction diets
 Results of overeating (obesity)
 Positive results of good nutrition (good strong bones, good complexion, general well-being)
 Which foods are sources of nutrients (proteins, minerals, etc.)
 Function of nutrients
 Results of deficiencies of nutrients (such as rickets)
 How food is digested
 How food nourishes cells
 Other (specify) _____
26. Listed below are various methods of teaching nutrition education. Reflecting back on your teaching, check one blank for each method.
- | Unsuccessful | No Opinion
did not use | Successful | |
|--------------------------|---------------------------|--------------------------|--------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A. Tasting new and unfamiliar foods |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | B. Learning to identify new foods |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | C. Using food models |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | D. Encouraging children to taste all foods served at school lunch |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | E. Planning menus for school lunch |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | F. Having children check if they are eating enough of a particular food (e.g., milk) |

<u>Unsuccessful</u>	<u>No opinion did not use</u>	<u>Successful</u>	
—	—	—	G. Having children develop plan for improving food practices
—	—	—	H. Keeping and/or revising records of food eaten in one day
—	—	—	I. Conducting small animal feeding demonstrations
—	—	—	J. Classification of foods according to four food groups
—	—	—	K. Planting vegetable seeds and watching them grow
—	—	—	L. Discussing how much of various foods are needed for growth & health
—	—	—	M. Evaluating progress in improving children's food practices
—	—	—	N. Making surveys of food wasted by grade groups at school lunch
—	—	—	O. Surveying food habits of members of class and their families
—	—	—	P. Comparing costs of different kinds of foods
—	—	—	Q. Going on field trips to show how foods are produced and/or marketed in community
—	—	—	R. Studying food habits of people from other parts of U.S. and world
—	—	—	S. Using resource people to come and tell about food
—	—	—	T. Lectures
—	—	—	U. Discussions
—	—	—	V. Using films or film strips
—	—	—	W. Discussing weight and height measurement of children in class
—	—	—	X. Other _____

27. Please specify any problems you have had teaching nutrition. (Add another page if necessary).

28. Please list names of the resources that you used in your nutrition teaching that were helpful. (Add another page if needed)

Books Pamphlets

Films Filmstrips

Curriculum Guides Other

SECTION C.

29. Please make any comments on nutrition education and/or the school lunch and/or breakfast program. (Add another page if necessary).

APPENDIX B

TEACHER COMMENTS AND RESULTS ON ITEM 26

TEACHERS' RESPONSES TO Item 29: MAKE ANY COMMENTS ON NUTRITION
EDUCATION AND/OR THE SCHOOL LUNCH AND/OR BREAKFAST PROGRAM

Comments of teachers in random order were:

The school lunch and breakfast programs are excellent. Foods are served well, are well balanced and good tasting.

A breakfast program is needed because most students do not eat breakfast.

The school lunch is too starchy and the meal is not well balanced.

A morning milk program might be beneficial.

Vending machines in the schools seem to say the school approves of poor eating habits when all they contain are chips and candy.

The school lunch program is good, but could be improved by less paper work and more just plain cooking.

I would like to see free school lunch for all children to eliminate peer pressure.

The school lunch is one of the greatest and most beneficial programs that could ever happen to U. S. children.

The school lunch menu is not suitable for younger children.

The school lunch program does not have a chance with an open campus at the noon hour.

I recommend training and workshops for the cooks and these could be beneficial for teachers.

There is a need to make the foods more attractive to the students.

A student board should be formed to help plan the menus.

The school lunch meals are repetitious.

The school lunch is appreciated by all. It is the only good meal some students get.

Comments that pertained to the curriculum were:

Students need to be better educated on nutrition principles.

Nutrition education should be covered in a required health class.

All grades should include nutrition education.

The lack of good nutrition affects the students' work and attitudes.

Comments that pertained to the parents' involvement were:

The parents need to be involved in nutrition education.

The students and the parents need to be convinced junk food is no good.

I don't think parents would be interested enough to put out the effort needed to improve their knowledge in this area.

The responsibility for nutrition education lies at home.

TABLE XXVI

TEACHERS' RESPONSE TO ITEM 26: LISTED BELOW ARE VARIOUS METHODS OF TEACHING NUTRITION EDUCATION. REFLECTING BACK ON YOUR TEACHING, CHECK ONE BLANK FOR EACH METHOD.

Method	Unsuccessful	No Opinion Did Not Use	Successful	Total Respondents
A. Tasting new and unfamiliar foods	5.9%	58.8%	35.3%	119
B. Learning to identify new foods	1.6%	53.7%	44.7%	123
C. Using food models	0.9%	48.7%	50.4%	113
D. Encouraging children to taste all foods served at school lunch	25.2%	23.6%	51.2%	123
E. Planning menus for school lunch	1.7%	76.5%	21.9%	119
F. Having children check if they are eating enough of a particular food (e.g., milk)	2.5%	18.9%	78.7%	122
G. Having children develop plan for improving food practices	7.6%	44.1%	48.3%	118
H. Keeping and/or revising records of food eaten in one day	0.8%	28.9%	70.3%	121
I. Conducting small animal feeding demonstrations	0.9%	92.2%	6.9%	116
J. Classification of foods according to four food groups	2.3%	3.9%	93.8%	128

TABLE XXVI (Continued)

Method	Unsuccessful	No Opinion Did Not Use	Successful	Total Respondents
K. Planting vegetable seeds and watching them grow	1.7%	66.1%	32.2%	121
L. Discussing how much of various foods are needed for growth and health	1.6%	13.9%	84.4%	122
M. Evaluating progress in improving children's food practices	7.7%	63.3%	29.1%	117
N. Making surveys of food wasted by grade groups at school lunch	0.0%	94.0%	6.0%	117
O. Surveying food habits of members of class and their families	1.7%	64.1%	34.2%	117
P. Comparing costs of different kinds of foods	0.0%	82.8%	17.2%	116
Q. Going on field trips to show how foods are produced and/or marketed in community	0.0%	91.5%	8.6%	117
R. Studying food habits of people from other parts of U. S. and world	0.0%	77.5%	22.5%	120
S. Using resource people to come and tell about food	0.0%	87.3%	12.7%	118

TABLE XXVI (Continued)

Method	Unsuccessful	No Opinion Did Not Use	Successful	Total Respondents
T. Lectures	4.4%	47.8%	47.8%	113
U. Discussions	4.3%	7.8%	87.9%	116
V. Using films or film strips	2.6%	37.7%	59.7%	114
W. Discussing weight and height measurement of children in class	1.7%	49.6%	48.7%	115
X. Other	4.0%	48.0%	12.0%	25

VITA

Marian Ann Motes

Candidate for the Degree of

Master of Science

Thesis: TEACHERS' PERCEPTIONS OF NUTRITION EDUCATION IN OKLAHOMA PUBLIC SCHOOLS

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