

EVALUATION OF THE STUDENT ADVISORY COUNCILS  
FOR SCHOOL FOODSERVICE PROGRAMS

by

SHARON K. EVANS

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Approved by:

*Celene S. Vaden*  
Major Professor

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## INTRODUCTION

The National School Lunch Program provides over twenty-five million meals each day to school students (1). Low participation of secondary students has been of growing concern to school administrators and food-service managers (2-4).

Student involvement in the foodservice program and provision of choices have been cited as positive influences on participation in the Type A lunch (5-8). Several reports indicated that student feedback is essential to an effective school foodservice program (9-11).

The impact of working mothers, school urbanization, and optimum utilization of facilities has made it necessary that students' nutritional needs be met at school (12). The Type A lunch was designed to meet one-third of the daily nutritional needs of the ten to twelve year old student (13). Emmons et al. (14) reported that students' nutritional intake increased when the Type A lunch was consumed.

The objective of this project was to study the influence of involving secondary students in the school foodservice program on student participation in the Type A lunch program and attitudes of the students toward the school foodservice. Implementation of student advisory councils was the approach used for involving students in the program. Four secondary schools in Kansas City, Kansas were the sites for the study. Advisory councils were initiated in two of the schools, which were designated as experimental schools. The other two schools were designated as controls. Data were collected during a seven-month period of the 1976-77 academic year. Specific objectives of the study were:

- (a) to measure the perceptions of members of the student advisory councils related to their involvement in council activities;
- (b) to assess student attitudes toward the school foodservice in the project schools at the beginning of the academic year, prior to implementation of student advisory councils at the experimental schools;
- (c) to assess school foodservice-related attitudes of students at the project schools after initiation of the student advisory councils and implementation of planned council projects and to compare results with initial attitude assessment;
- (d) to study level of Type A lunch participation at the four schools during the study period to assess impact of the student involvement project; and
- (e) to compare the level of Type A lunch participation during the study period with the level during a similar period for the previous academic year.

## REVIEW OF LITERATURE

### Historical Background

Concern for the hungry child gave the initial thrust to the school lunch movement (15). The history of school lunch programs dates to 1790 when Count Rumford initiated a program of teaching and feeding vagrant children in Munich, Germany. Soup kitchens were provided for poor, unemployed adults who, in return, made army clothing (16).

Nearly a century later, France allocated surplus National Guard funds for use in establishing a school lunch program. Within a decade school lunches were a compulsory part of the education law (15).

Holland became the first country to develop a national school lunch policy. In 1900 a Royal Decree mandated municipalities to provide clothing and food to school children who needed both to be able to attend school (16).

In 1903 Switzerland passed a federal law which provided food and clothing for needy school children. By 1906 cities were given permission to use public funds to provide lunches for all school children (17). The same year England enacted a provision placing school lunch programs under educational authorities rather than private and charitable organizations. The Provision of Meals Act was passed because of the number of men found physically unfit to fight in the Boar War of 1902 (15).

By the early 1900's school feeding programs spread through the larger European cities. Persons responsible cited better classroom attendance, more alert children, and fewer discipline problems as reasons for

initiating the programs. Later, height and weight gains of school children provided substantive evidence to support the school feeding programs.

In America early school feeding programs began in New York City in 1853. These programs were initiated by private societies and associations such as the Children's Aid Society of New York (16). By 1894 Ellen H. Richards, a home economics pioneer, organized the Boston School Committee and developed a school feeding program under the auspices of the Board of Education (17). However, the school lunch movement had a slow and difficult beginning. When the nation was alarmed by the number of men physically unfit to fight in World War II, the school feeding program began to spread. Parent-Teacher Associations, civic clubs, and volunteer fire departments became sponsors of programs (15).

With the onset of the depression, marketing of America's agricultural products became a problem. Surplus farm products mounted, prices declined, and farm income decreased (18). In 1935 the 74th Congress legislated monies to the Secretary of Agriculture to purchase price-depressed surplus foods from the market. School lunch programs and needy families became excellent outlets for these United States Department of Agriculture (USDA) commodities. Under Section 32 of the school lunch law, purchase and distribution of commodities became a mainstay of the national program (19, 20).

## Legislative Developments

### Legislative Background

The National School Lunch Act was passed by Congress in 1946 (21). The purpose of the law was: (a) to safeguard the health and well-being of the nation's children, and (b) to encourage domestic consumption of

agricultural commodities and nutritious foods (19, 20). Policies or standards of the National School Lunch Act developed the following guidelines:

1. The program should be nonprofit.
2. Lunches served should meet nutritional requirements.
3. Free or reduced price lunches should be served to children unable to pay the full lunch price (22).

The initial school lunch program of 1946 has expanded and broadened because of the increased awareness of children's nutritional needs, both physical and educational. During the early 1960's, expansion of the program was brought about by new legislation which mandated that all children were to be fed regardless of ability to pay. School districts were reluctant to sign up for the National School Lunch Program because of the cost of providing free and reduced-priced meals and the absence of adequate federal funding (19, 23). In 1962 a formula for appropriation of Federal funds to the states was revised. The formula rewarded those states making the greatest effort toward increasing participation (24).

The 89th Congress passed the Child Nutrition Act of 1966. Public concern about the relationship between food and nutrition and the ability of children to develop and learn provided impetus for this legislation. Funds were appropriated to establish and maintain a nonprofit breakfast program in schools applying for assistance (25).

Hunger within the nation became the focus of several task force groups in 1967. In April investigations were started in the Mississippi Delta to determine the extent of hunger in the United States. Results of this study made by the Senate Poverty Subcommittee stimulated publication

of Hunger USA which spotlighted the existence of hunger in the nation and identified "hunger counties" in the United States (26).

A Study of the National School Lunch Program conducted in forty select communities across the nation revealed goals of the program were unattainable due to the limitations built into the system. Results of the study published in Their Daily Bread in 1968 were sponsored by five women's organizations: Church Women United, National Board of YWCA, National Council of Catholic Women, National Council of Jewish Women, and National Council of Negro Women (27).

Bard (15) criticized school lunch program operations and described the effects of malnutrition on children in the book The School Lunch Room: Time of Trial. Failures of anti-poverty legislation were pointed out and recommendations were given for expansion of the program. According to Bard, "The school lunchroom is one of the underdeveloped areas in American education. It is starved for facilities, and starved for funds to serve the proper food in the right amount to children who need it."

Another force bringing hunger to the attention of the nation was the nationally televised documentary, "Hunger in America" telecast in 1968 (28). Congress, reacting to public concern about hunger, created the Senate Select Committee on Nutrition and Human Needs in July 1968. Surveys conducted by the committee showed federal food programs often failed to reach needy people (29). Realizing the original objectives of the National School Lunch Act of 1946 were not being met, Congress implemented seven short-term recommendations:

1. Increased contributions from all governmental levels to decrease the price of the lunch.

2. The establishment of school districts, not individual schools, as the contracting unit.
3. Higher reimbursement rates.
4. A national standard for determining eligibility for free or reduced price lunches.
5. Strict prohibition of discrimination and segregation in the lunchroom.
6. Consolidation of all school food programs under one administration.
7. Implementation of National School Lunch Program objectives (30).

Formation of the White House Conference on Food, Nutrition, and Health in 1969 reflected the nation's concern for malnutrition and consummated the sense of urgency felt. The conference was designed to focus national attention on the nation's nutrition problems (31).

These actions were the beginning of a series of enactments that brought about a sweeping overhaul of all school feeding programs. In 1969 the Food and Nutrition Service was established within the USDA to concentrate on the administration of federal food programs (32).

The 91st Congress enacted Public Law 91-248 containing provisions to strengthen the program and give greater assistance to the needy child (33). This law established minimum eligibility standards for free and reduced price meals based on family income (33-35). The law stated that every child from a low income home shall be served a meal at school. A National Advisory Council was created to make a continuous study of the operation of programs carried out under the National School Lunch Act and the Child Nutrition Act of 1966 (33).

Public Law 92-153 enacted in 1971 increased federal reimbursement to a minimum forty cents per meal for free lunches and set an average reimbursement rate of six cents per meal for all lunches. Funding was allocated to states in accordance with participation (36). Additional amendments initiated during fiscal 1971-72 authorized raising general assistance payments to eight cents for all lunches and increasing eligibility standards for free and reduced price meals (37). These legislative actions provided about 62 per cent of the nation's needy children with a free or reduced price meal (33).

Reimbursement was again increased with the enactment of Public Law 93-150 in 1973 (38). Claims for free lunches received a forty-five cent reimbursement and general assistance for all lunches was raised to ten cents. An escalator clause designed to review rising food costs was provided. As a result, reimbursement rate adjustments are computed semi-annually to the nearest one-quarter cent (39).

#### Recent Legislation

National concern about food supplies and conservation of resources has generated widespread public awareness of the problem of plate waste in the feeding programs, particularly in secondary schools (40, 41). Congress considered this dilemma while drafting new legislation in 1975. As a result, Public Law 94-105 allows the senior high school students to select menu items from foods offered; i.e., lunch components are offered rather than served (42, 44). Other highlights of the amendments to the National School Lunch Act included the mandating of reduced price meals and the exclusion of margarine as a required component. Free and reduced price meals eligibility was expanded to 195 per cent of income poverty guidelines to allow more students to qualify for school lunch assistance (43, 45).



The school lunch programs in the United States are the largest and most comprehensive school feeding programs in the world (33, 46, 47). Student participation reached a record high of 25.9 million in fiscal year 1976. This was half a million more children than participated in 1974. Over half of these children received a free or reduced price meal (48).

#### Nutrient Contribution of School Lunch

The Type A lunch pattern for the national school lunch program was designed to provide one-third of the recommended daily dietary allowances for a 10- to 12-year old child (49, 50). Recommendations emphasize an iron-rich food and a vitamin C rich food each day and vitamin A rich foods twice a week. Fat in the Type A lunch must be kept at a moderate level and iodized salt should be used in preparing the lunch (51). These recommendations, advocated through research by the National Research Council, include the following Type A lunch requirements:

1. Two ounces of meat or meat alternate
2. Three-fourths cup serving from two or more sources of fruits and/or vegetables
3. One serving whole-wheat or enriched bread
4. One teaspoon butter or fortified margarine
5. One-half pint fluid milk

Various research studies have been conducted on the nutritive content of the Type A school lunches. Meyer et al. (52) completed a chemical analysis study of the lunches to determine adequacy of caloric content and of six nutrients: protein, fat, calcium, thiamine, riboflavin, and ascorbic acid. Lunches collected from fifteen schools in seven states

were used in the study conducted in 1950. Results of a 1949 study conducted by Augustine et al. (53) in four states within the North Central Region were incorporated into Meyer's research. Adequate amounts of all nutrients to meet the one-third daily dietary allowances were found, except for thiamine.

Head et al. (54) collected Type A lunch samples at twenty-one North Carolina schools in 1971. Laboratory analyses indicated ample amounts of two additional nutrients, vitamin A and iron. Thiamine levels were higher than levels recorded in Meyer's study. Caloric content of the lunch was lower than the established nutritional goal of 792 calories while relatively high levels of fat (43 per cent of total calories) were found.

An extensive study of the nutritive content of the Type A lunch was made in 1966. Data were collected from 300 participating schools selected to represent the five administrative regions of USDA. Research included analyses of protein, energy value, fat, seven vitamins, six minerals, nine trace minerals, and lipid components. Mean value of each component element was compared to the amount needed to meet the recommended dietary allowance. From this comparison, iron, thiamine, and manganese were lacking to a discernable degree, but not enough to alter the Type A requirements (54, 58).

A study of elementary students in two rural New York districts was conducted by Emmons et al. (14) in 1970. Results showed the school lunch program provided more protein, calcium, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid than bag lunches brought from home. Nutritional contribution of the school lunch showed a difference by region; e.g., eastern schools frequently served foods high in vitamin A and carotene. Schools in the western region incorporated legumes in the menu more often

which accounted for the slightly higher levels of thiamine in that area (58). Low caloric value of lunches correlated with low thiamine value.

The Type A lunch pattern was originally designed around the seven food groups in 1946. Presently, the pattern based on the four groups, approximates but does not guarantee that the nutritional goal of the meal will be met (54). In 1973 the USDA Food and Nutrition Service contracted with Colorado State University to develop a nutrient standard method (NSM) for planning procedures as an alternative to the Type A lunch pattern (59, 60).

Developmental work by Frey et al. (59) on the nutrient standard menus noted the following advantages over the Type A pattern: (a) greater menu flexibility, (b) increased menu acceptance and decreased waste, (c) crediting nutrient content in regular and fortified foods, (d) greater assurance that menus meet nutrient requirements, and (e) reduced cost. A continuation of the NSM study versus the Type A pattern was conducted in 1974 in twenty-nine schools representing three regions of the USDA Food and Nutrition Service. Sixty per cent of the participants in the study conducted by Harper et al. (61) preferred the NSM because of the nutrient assurance, flexibility, and potential for nutrition education.

Further comparison of two menu patterns by Jansen et al. (62) noted nutrient deficiencies consistent with earlier school studies. Thiamine was low and low iron content was the most serious nutritional problem. However, this is true not only for school lunch, but also for many diets consumed by young children and women in the United States.

Preferences and Attitudes Related  
to Food and Nutrition

Teenagers are approaching that time in life when individual expression and frank social rebellion seem desirable and essential to the development of a mature personality. Individuality is expressed in clothes selection, word choices, music selection, and hair styles, as well as the foods eaten and when and where they are eaten (63). Teenage attitudes toward nutrition and poor food habits are reflective of several factors: (a) parental attitude, primarily the mother's, toward nutrition; (b) individual food preferences and dislikes; (c) practices of snacking and skipping meals, and (d) concern about obesity and complexion (64, 66).

Brown (66) conducted a study to determine the basis of food habits among college freshmen. Results indicated mothers had a tremendous influence in establishing basic attitudes toward foods by the ways foods were served and the variety of foods served. Children reflected parental food likes and dislikes through their food choices.

Gargano (67) determined that food preferences stated by high school students are an indicator of foods selected from a cafeteria line. For food preferences to be a reliable predictor of forecast demand, however, other influential factors might include: merchandising of the foods on the serving lines; other menu items available; school activities; and environmental conditions such as weather and the season of the year.

Pilgrim (68) reported preferences to be an important indicator of food consumption and an expression of like or dislike for a specific food item. The study showed that preference not only predicts the amount of food consumed in a given situation, but also the proportion of persons accepting a food. Customers indicated a preference for simple foods like

milk, desserts, and meats with the exception of lamb, fish, and organ meats. Pilgrim found that potatoes were the most popular vegetable and that the method of preparation preferred was dependent upon what meat the potato was to accompany. Various kinds of fried potatoes were accepted with fish while mashed, creamed, and scalloped potatoes were preferred with red meat items.

A study conducted by Kinzell (11) in Seattle among elementary students compared students' appetites (amounts of foods that students desired) with portion sizes contained in the Type A lunch package. Two sizes of lunches were offered that met the Type A lunch pattern. The larger lunch contained larger portions of foods that students wanted more of and smaller portions of foods that students wanted less of and sold for a slightly higher price. Conclusions from the study were: (a) desired amounts of foods were consistent when served on different days; (b) amounts of foods desired by students could be quantified by using a diagram to evaluate standard portion sizes; (c) boys consistently wanted larger portions than girls; (d) students who requested larger lunches wanted larger portions of the entree, roll, and/or dessert; (e) students often wanted the same size or smaller serving of vegetables and salads; and (f) generally, the amount of fruit served was acceptable.

A study by Young and LaFortune (65) reported food dislikes had little influence on adequacy of the diet because most intensely disliked foods were seldom served food items, such as buttermilk, parsnips, turnips, brains, greens, and soybeans. The greatest effect on inadequacy of nutrient intake was the lack of ample amounts of choice food items, such as milk, bread and cereal, and eggs.

Hampton et al. (69) found little relationship between frequency of teenage eating and overall nutritive quality of teenage diets except when meals were consumed fewer than three times a day. The study found that students tended to consume more calories as well as higher levels of calcium, thiamine, riboflavin, and ascorbic acid during the school year. This was attributed to more regular eating and living habits than during vacation times. Their study further revealed that teenagers ate from two to six times during the day.

Steele et al. (70) reported that between meal foods contributed 10 per cent or less to daily nutrient intake of the junior high students in their study. Snacks contributed substantially to calories, protein, calcium, and phosphorus. The growth spurt which occurred during adolescence accounted for the number of times food was consumed daily. In a study by Potgietier et al. (71), 97 per cent of the students participating in a seven-day food intake project reported eating between meals; about 10 per cent reported consuming an average of two or more snacks per day. Only 10 per cent of the students in the study reported missing any meals.

Huenemann et al. (72) found lunch was the meal most often skipped by students in their study. Reasons given for skipping lunch were: (a) activities interferred; (b) not enough time to eat; (c) took too long through the cafeteria line; (d) serving time was too early or too late; and (e) dieting.

Leverton (73) stated the paradox of misconceptions held by adolescents toward nutrition: teenagers wanted energy, vigor, and the means to compete and excel in whatever they did. Yet, to the teenager, nutrition meant eating disliked foods because they were good for the body. Leverton supported a more positive attitude toward teenage nutrition by stressing

that teenagers must be provided food they need and like at times they need and like it.

### Student Participation in the Type A Lunch Program

#### Factors Affecting Participation

The nutritional benefits of the school lunch program toward the dietary intakes of children has forced school administrators, foodservice personnel, and officials of USDA to study the reasons for low participation in the program (74, 75). Doucette (4) reported that low participation was a key problem. Therefore, factors affecting participation must be identified. Program flexibility using menu choices within the Type A lunch pattern (7, 76), treating students as customers (77), and involving students in menu planning (11) have been cited as positive approaches to increasing participation in high school lunch programs.

A USDA-sponsored study conducted in three Florida schools suggested the school foodservice pattern be changed to allow greater flexibility in senior high schools. The study involved three schools, each with a different format for lunch. School A offered only the regular Type A lunch. In School B, food choices were not controlled and empty calorie foods could be purchased. School C offered four variations of the Type A lunch geared to meet individual students' nutritional needs. Variations included a regular Type A lunch, a jumbo lunch, a low calorie lunch, and a cold lunch. Conclusions from the study were: (a) participation increased at School C, demonstrating the program's acceptability; (b) the program could be modified to meet the individual nutritional needs of students; (c) when complete freedom was given to students, food choices were extremely poor, especially where empty calorie foods were available; and

(d) nutrition education was needed to enable students to make wise food choices (76).

Batson (7) implemented a program of seven different Type A meals each day to students accustomed to an elaborate a la carte program. Three hot and four cold entrees provided the main difference between the lunch choices and also offered flexibility within the Type A lunch pattern. After implementation, participation in the lunch program increased an average of twenty-five plates per day, although the high schools involved had an "open campus" policy. Gibson (8) supported "change to choice" in a Missouri school district in 1972 which resulted in a 6 per cent increase in participation at a time when nationwide, secondary participation was on the decline.

Project SMILE (78) initiated in a Georgia high school in 1974, was based on the contention that dining room cleanliness and good behavior of students were inspired by pleasant surroundings. A team approach used to improve menu choice, food quality, and lunchroom environment had a positive effect on participation, consumption, and student behavior. Lunch participation increased to 83 per cent of student attendance; food consumption increased 5 per cent; and improvements in lunchroom behavior were reported.

Twenty secondary schools throughout the country were selected for a study of high school participation in the USDA Child Nutrition Programs (79). The five regional offices of the USDA Food and Nutrition Service worked with state agencies to select four schools in each region to participate. Two of the schools in each region were high participation schools while the other two were low participation schools. High



participation was defined as over 80 per cent average daily participation (ADP) and low participation indicated under 20 per cent ADP.

Two-thirds of all low participation schools had a "closed campus" policy in which students were not allowed to leave the school grounds during lunch period. Low participation by students in closed campus high schools suggested a strong desire to be treated as customers, not as a captive audience (77). In the average high participation school, 82 per cent of the students believed that they should have a part in planning the menus for school foodservice. Also, the Type A lunch was merchandised well, a la carte items were limited, and food quality was average or better. Choices in the style of lunch and in the components of the lunch were available. In the average low participation school, 76 per cent of the students felt that they should have a part in planning menus. The Type A lunch was not merchandised or promoted, a la carte items were emphasized, and food quality was average to good. Few choices, either in the style of lunches or in the components of the lunch, were available (79).

Negative or indifferent attitudes held by administrators and faculty were found to influence student participation. Administrators in the average high participation schools had positive feelings about the school lunch program and its benefits; while only two of the ten low participation school administrators reflected positive feelings toward the program (78).

In a Louisiana study, Law et al. (10) reported that when students were asked what they disliked about school lunch, waiting in line was listed more often than any other factor. The statewide nutrition survey conducted in Massachusetts in 1969 (80) also revealed that waiting too

long in line to get lunch and having to eat quickly were reasons why students did not participate in the Type A lunch program.

There are certain factors, however, inherent in any school situation, which remain fixed. Ottman (81) reported that certain uncontrollable factors affecting school lunch participation included average daily attendance, size of community, type of community, and percentage of students riding buses to school. He found that student participation in the Type A lunch program tended to decrease as the size of the school increased; participation decreased as the size of the community increased; students in schools in rural areas participated more frequently than those in urban and industrial areas; and schools with more than the average number of students riding buses showed somewhat higher participation rates than other schools.

#### Student Involvement

Chegwidden (2) and Kinzell (11) purported that participation in the school lunch program had a direct correlation to student involvement. They outlined a variety of ways students could be involved. In 1973, the American School Food Service Association (ASFSA) initiated a program at the national level with an advisory committee composed of seven high school students, one from each ASFSA Region (82). The committee represented all students, those eating school lunch and those not participating in the program. The committee was designed to function in several ways: as advisors in nutrition education, as spokesmen before Congress, and as initiators of improvements or changes required to meet student needs better.

At the local level, student feedback has been identified as necessary to an effective school foodservice program. Student food committees have

been adopted by some school foodservices as a mode for student input (6). In Milwaukee, the school lunch committee of the Inter-High Council advises the foodservice director and staff concerning food items to be purchased. A committee taste panel was asked to judge foods on the basis of flavor, color, and texture, and to consider cost in making decisions. Foods selected by the committee were actually incorporated into the Type A menus for the Milwaukee school district (9).

At a high school in Fort Lauderdale, Florida, students were involved with participation through committee work also. Lewis (83) reported that the school foodservice committee was made up of the principal, the cafeteria manager, a teacher, a guidance counselor, a parent, and a student representative elected by the Inter-Club Council. The elected student served as chairperson of the student cafeteria committee comprised of students representing each grade level. Committee ideas and recommendations were discussed with the principal for consideration and possible implementation.

## METHODOLOGY

### Site of Study

The project was designed for implementation in four secondary schools in Kansas City, Kansas. The foodservice departments in the district were centralized into one office in 1969. Prior to that time the cafeterias were under the supervision of the director of Home Economics and each school had its own independent cafeteria.

The foodservice director is responsible for the school district's foodservice department and is responsible, organizationally, to the assistant superintendent for business affairs. Three supervisors assist in the overall direction of the foodservice operations at the district level. Centrally-planned, non-cycle menus are written six weeks in advance of service by the director and supervisors. Monthly meetings are scheduled for review of the menus. Food and supply orders are sent to the foodservice office weekly from each building and all purchasing is completed at the district foodservice office.

The district has a total enrollment of 26,621 students attending five senior high schools, nine junior high and middle schools, forty-one elementary schools, and three special education centers. Approximately 16,500 students in all fifty-eight education centers participate in the Type A lunch program each day. Twenty-seven schools have on-site preparation and service with a foodservice manager assigned to each building. Seven elementary schools within a geographical area, separated from the rest of the district by the Kansas River, receive lunches prepared at and

transported from a senior high school kitchen. The remaining twenty-one elementary schools and three special education centers receive pre-plated lunches prepared, portioned, and packaged at the district's central kitchen. Approximately 350 people are employed by the district foodservice department.

All secondary schools have a "closed campus" policy; i.e., students are not allowed to leave the campus during the lunch period. All students are required to go to the cafeteria during their lunch periods where they may eat the Type A lunch, select foods from a snack bar, or eat a sack lunch or other foods brought from home. Organization of the lunch periods varies according to the school population and ranges from twenty-two to twenty-five minutes. At the senior high schools, lunch schedules are staggered into six or eight time periods. Serving at the senior high schools is a steady process with a minimal number of breaks between lunch periods. The junior high schools have four or six distinct lunch periods with breaks between serving times. All secondary schools have two serving lines for the Type A lunch.

China service is used at the senior high schools, while the junior high schools use plastic, compartmented trays. A separate snack bar line open during the lunch periods offers fresh fruit, fruit juice, cold sandwiches, milk, ice cream, and cookies which students may purchase. Also, at the senior high schools, students may purchase components of the Type A lunch.

Two junior high schools, Arrowhead and Central, and two senior high schools, Washington and Schlagle, were selected for the study. Enrollment figures for the four schools (Table 1) were taken from the official student count on September 15, 1976, which was submitted to the Kansas State

Department of Education. Also presented in Table 1 is the percentage of students approved for service of free and reduced price meals. The number of approved applications maintained in each school office was determined for calculation of this percentage.

Table 1: Enrollment in project schools and percentage of students approved for free and reduced price meals

1976-77	Schlagle	Washington	Arrowhead Jr.	Central Jr.
enrollment	1409	1955	698	1019
% free	25.5	18.6	11.7	52.3
% reduced	2.9	2.4	7.4	9.0

Central Junior High School is located in one of the three industrial areas of Kansas City, Kansas, and is closest in proximity to the inner-city area. The area around Central Junior High School is more densely populated and very few students ride buses to school. Arrowhead Junior High School and Washington High School are located in the outlying, sparsely populated areas of the school district and many students ride school buses. Schlagle High School is located between the inner-city and outlying areas.

### Organization of Study

#### Research Design

An experimental research design was used for developing the study. Two of the four schools were control schools and two were assigned to the experimental treatment. There was a control and an experimental school at

each secondary level; i.e., one of the junior high schools and one of the senior high schools were a control school and one at each level was assigned to the experimental treatment. The experimental treatment involved organization of a student advisory council for foodservice at the two experimental schools, Central Junior High and Schlagle Senior High. A council was not organized at the control schools, Arrowhead Junior High and Washington Senior High.

#### Organization of Student Advisory Councils

Data for this study were collected during the fall and spring semester of 1976-77. The actual study period covered six months or 125 school days in length, between September and April of the 1976-77 school year. Prior to collection of the data, approval was received from the district superintendent of schools, the foodservice director, and the principals of the four schools involved in the study. The foodservice managers of the four schools also were contacted to familiarize them with the project. Periodic consultation with the foodservice director, the principals, and the foodservice managers continued throughout the study.

The school principal assisted in establishing the councils and in selecting the members. At Central Junior High the ninth grade student council volunteered to serve as the advisory council and was composed of approximately twenty-five students. At Schlagle Senior High an existing committee that served as a consultative committee to the principal functioned as the foodservice advisory council as well. The committee was comprised of nine students from all three grade levels.

During the study period, the advisory group in each experimental school initiated various activities. At each introductory meeting, various

activities were suggested and the two councils selected activities of interest to the members. There were differences between the two schools in the activities selected. For example, the junior high council indicated an interest in planning a week of menus for their school; whereas, menu planning was not an interest at the senior high school.

At Central Junior High, council activities were planned that would enable the students to better understand the various factors to be considered when planning a week of menus for their school. The Type A lunch requirements were explained. A tour of the school kitchen was conducted by dividing the facility into areas of preparation. Commercial equipment used in each area of preparation was demonstrated. Menus for five school days were written by the council members. Each menu component was scored to determine which foods would be served during the week. Publicity to announce the week of student selected menus was carried out through the school paper, bulletin boards and homeroom announcements. Other activities such as decorating the cafeteria and displaying posters were planned to increase enthusiasm and to provide opportunities for the group to work together.

At Schlagle Senior High, the council members indicated more interest in the managerial aspects of the school foodservice. Topics selected for discussion included the Type A lunch requirements, monetary factors of the foodservice operation, and requests from the student body concerning equipment and longer lunch periods. New menu foods were introduced to the council before the items were served to the student body. Various china patterns were exhibited at one council meeting to get the members' reaction. Proper handling of foods and the sanitary conditions of the foodservice were discussed following a tour of the kitchen.



Monthly meetings were held by each council at the experimental schools during school hours. The principals attended a few meetings but were not present for all meetings. The foodservice manager in each experimental school attended the council meetings held in their respective schools. Each council meeting was developed around a primary purpose or theme. Activities were designed and implemented to accomplish the purpose. Tables 2 and 3 describe the sequential order of the meetings held by the councils at Central Junior High and at Schlagle Senior High, respectively.

#### Types of Data Collected

Data for the study consisted of several types: (a) assessment of the student advisory council activities by the council members at the two experimental schools; (b) students' attitudes toward the school foodservice at all four schools immediately before and following the study period; (c) student attendance and participation<sup>1</sup> in the school lunch program at all four schools throughout the study period; (d) percentage participation (participation in the Type A program in relation to daily student attendance) for each day during the study period; (e) average daily attendance and participation in the school lunch program during the 1975-76 school year for a period comparable to the study period; and (f) daily percentage participation for 1975-76 and 1976-77 in relation to average daily attendance.

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<sup>1</sup>Participation in the school lunch program was defined as the number of persons who selected the Type A school lunch.

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 Table 2: Council activities at Central Junior High School during the study period
 

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date	purpose	activity
September	introductory meeting purpose of council length of study meeting times activities	get acquainted session
October	Type A lunch requirements	tour of school kitchen areas of preparation--main dish, baking and salads operation of commercial equipment dishwashing snack bar
November December	introduce nutrition	displayed posters put up bulletin board decorated cafeteria for holidays
January February	menu planning review of requirements	writing menus determining five menus to be served
March	publicity for week of menus planned by the council	bulletin board newspaper interview homeroom announcement
April	evaluation of council activities	complete evaluation form

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 Table 3: Council activities at Schlagle Senior High School during the study period
 

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date	purpose	activity
September	introductory meeting purpose of council length of study meeting times activities	get acquainted session
October	food service improvement lunch periods foods requests snack bar	group discussion
November	Type A lunch requirements	group discussion
December	selection of replacement china color and design weight durability cost	exhibit of china by council
January	introduction of new foods	sampling of new foods entrees--potatorita and turkey ham vegetables--deep fried okra and mushrooms bread--egg rolls dessert--frozen yogurt
February	preparation of the lunch	tour of school kitchen sanitation handling of foods
March	evaluation of council activities	complete evaluation form

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## Assessment of the Student Advisory Council

After the study period, the student advisory council in the two experimental schools (Central Junior High and Schlagle Senior High) evaluated the activities of each group, respectively. Evaluation forms listing the activities of the group (Appendix A) were given to each member during the final meeting. Students were asked to rate each activity by checking the one response that best described their reaction toward that activity. Five response categories were used: (a) very worthwhile, really worth my time; (b) somewhat worthwhile; (c) okay or unsure; (d) somewhat a waste of time; and (e) not worthwhile, a real waste of time. Students were also asked to indicate activities they believed should be repeated and to evaluate other foodservice projects not included in their group activities.

## Attitude Survey

Development of the Instrument for the Student Attitude Survey. The initial student attitude instrument was adapted from those used by Garrett (5) and Gargano (67) in their studies related to school foodservice. Mark sensitive computer cards were used to facilitate tabulation of data from the student attitude survey. After studying the original draft, several revisions were made in the directions to students. Initially, the directions gave one example using an A or B response. Since the mark sensitive cards used alternate alphabetical and numerical indicator answers, the directions were expanded to include two examples, one showing the alphabetical answer and one showing the numerical answer. Further explanation was included to indicate odd numbered questions would have numerical answers while even numbered questions would have alphabetical answers.

The format of the student attitude survey consisted of questions on biographical data, student lunch habits, attitudes toward the school foodservice, and student involvement in foodservice activities. Biographical data included grade classification, sex, and number of semesters enrolled at the test school. Student lunch habits related to questions concerning frequency of participation and reasons for participating. Student attitudes were reflected in ratings given to the school foodservice program, the physical conditions, the foodservice personnel, the food, the lunchroom supervision, and the time allowed for lunch periods. Foodservice involvement activities such as menu planning, advisory group tours, and lunchroom decorations were also rated by the students. Other items pertained to student awareness of the daily menu, what people encouraged participation, and from what sources were foods available for students at lunchtime.

A pilot test of the student attitude survey was not administered because the instrument was adapted from ones previously used. Time and expense were also limiting factors. The scope of the initial survey (1000 students in four locations) was intended to support a valid response ratio without a pilot test.

The final instrument (Appendix B) was published in booklet form. Four hundred copies were printed to facilitate ease in administering the survey. Prior to distribution, a mark sensitive computer card was placed in each booklet.

Selection of the Sample for Attitude Survey. Approximately 30 per cent of the student population in each of the four schools was selected to participate in the attitude study. In each school, classes were selected which accounted for the approximate desired sample size. The classes

selected were limited to those meeting during both the fall and spring semesters of the 1976-77 school year, so the pretest and posttest could be administered to the same students.

Whole classes were used rather than a straight random selection because of the difficulty in administering both a pretest and a posttest to a large random sample in a school setting. Responses were more likely to be a student's own opinions and not influenced by others' when administered to a class as a whole. Teachers assisted in giving standardized instructions. A better response rate was expected through the use of group administration.

The principal in each of the four schools selected classes or homerooms representing approximately one-third of each of the three grade levels. At Schlagle, the survey was administered during an extended homeroom period; at Central, during English and math classes; at Arrowhead, during English classes; and at Washington, during a variety of classes including English, social studies, home economics, typing, and physical education.

Administration of the Attitude Instrument. Before the administration of the attitude study, notices were sent to the teachers of the participating classes or homerooms announcing an orientation meeting. Another notice was distributed to the teachers to introduce the posttest.

Scheduling the administration of the attitude study was planned with each principal and announced through the daily bulletin two days prior to the date. The instruments were delivered to each teacher's school mailbox one day prior to the date of administration for both the pretest and posttest. After administering the questionnaires to their participating

classes, the teachers returned the questionnaires to the principal's office.

#### Attendance and Participation in the School Lunch Program

Total student enrollment at each of the four schools was obtained from the official student count submitted to the Kansas State Department of Education at the beginning of the fall semesters in 1975 and 1976. Each day the number absent was obtained from the attendance clerk at each of the four schools. To determine attendance for each day during the 1976-77 study period, absences were subtracted from the school enrollment. Faculty attendance was not recorded. At the end of the last lunch period each day, the number of students eating the Type A lunch was obtained from the cashiers in each of the four schools and recorded on the form for recording school attendance and participation (Appendix D). Daily percentage participation in the school lunch program was calculated by dividing the number of students participating by the number in attendance. Procedures for obtaining these figures were the same for all four schools. At the end of the study period, average daily attendance (ADA) was determined. Percentage participation in relation to ADA also was determined to provide a comparison with data from the previous year. Daily attendance data were not available for the 1975-76 school year, therefore, the average daily attendance for the year was used in computing daily percentage participation.

#### Analysis of Data

Student advisory council members evaluated the council activities by rating the various activities according to the member's perceived value of the activity. The ratings were tabulated by school.

Frequency distributions were compiled for responses on all items on the attitude survey for both the pretest and posttest by school. Items 1-12 were demographic or general information questions; no further analysis was done.

Items 13-24 were categorized into either food-related questions (items 15-17, 22) or nonfood-related questions (items 13, 14, 18-21, 23, 24) (Appendix E). Responses for ten items were given a weight of one, two, or three, with the most positive response weighted the highest; the other two questions (items 23 and 24) were scored on a two-point scale. A food score and a nonfood score were computed by summing the scores of the individual items. The maximum food score was 12, and nonfood, 22. Scores are summarized in Table 4.

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Table 4: Criterion measures for analysis of data

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measure	computation
food score	$\Sigma$ item scores, items 15-17, 22
nonfood score	$\Sigma$ item scores, items 13, 14, 18-21, 23, 24
interest in involvement score	$\Sigma$ item scores, items 26-31
% ADP (average daily participation)	$\frac{N \text{ students participating in Type A lunch}}{\text{daily attendance}}$
% ADA participation (used for prior year comparisons)	$\frac{N \text{ students participating in Type A lunch}}{\text{average daily attendance for study period}}$

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Pretest and posttest food and nonfood scores were compared among schools by using one-way analysis of variance with the least significant difference test (LSD) for multiple comparisons (84). Food and nonfood



scores also were compared in relation to frequency of Type A lunch participation for pretest and posttest by using one-way analysis of variance with the LSD test.

Pretest and posttest scores on individual food and nonfood items were compared by schools using the t-test for two independent samples (84). The t-test also was used to compare individual item scores for frequent and infrequent participants, on both the pretest and the posttest. Respondents were grouped as frequent participants if they ate the school lunch three or more times a week or infrequent, if they ate less than three times a week.

Responses to the six interest in involvement questions (items 26-31) of the attitude survey were weighted one, two, or three, with the most positive response weighted the highest. An interest in involvement score was computed by summing the scores of the individual items (Appendix E). The maximum interest score was 18. The interest in involvement score was compared among schools, on both the pretest and posttest, again by using one-way analysis of variance with the LSD test. Pretest and posttest scores on individual interest items were compared by school, using the t-test for two independent samples. The t-test also was used to compare individual item scores for frequent and infrequent participants, on both the pretest and posttest.

Average daily percentage participation throughout the study period was analyzed by school by computing the mean for each of the seven months. These data were plotted for a graphical presentation of trends.

As described previously, participation also was analyzed by comparing data for a similar period from the prior year (1975-76) with statistics

from the study period (1976-77). A t-test for two related samples was used to compare the mean percentage participation by school for the study period and the previous year (84).

## RESULTS AND DISCUSSION

Evaluation of the Student Advisory Council  
Activities at Experimental Schools

At the end of the study period, members of the school foodservice councils at the two experimental schools were asked to evaluate the council activities. The evaluation form consisted of three parts: (a) a rating of activities; (b) interest in repeating activities; and (c) interest in additional activities.

The evaluation of the student advisory council activities at Central Junior High School is presented in Table 5. Planning a school menu was rated the highest, while learning about the Type A requirements and sampling new foods were rated second and third. The committee indicated the least interest in posters and displays.

At Schlagle Senior High School, the committee evaluation revealed the greatest interest in touring the school kitchen (Table 6). Comments made by the members of the council indicated surprise that the kitchen was very clean and that the basic food products were of high quality. Little interest, however, was shown in the discussion of equipment. Overall, the ratings indicate the students believed the activities were worthwhile.

At Central Junior High School, council members recommended planning a school menu most strongly as an activity to repeat. Members indicated touring the kitchen and sampling new foods also had high priority (Table 7); whereas, the council at Schlagle Senior High School selected touring the school kitchen as an activity to repeat, along with learning the

Table 5: Evaluation of student advisory council activities at Central Junior High School<sup>1</sup>

activities	very worthwhile	somewhat worthwhile	okay, unsure	somewhat waste of time	not worthwhile
Type A requirements	13	6	3	-	-
decorate cafeteria	8	9	5	-	-
posters and displays	4	9	8	1	-
tour of kitchen	9	6	7	-	-
plan a school menu	17	2	3	-	-
sampling new foods	11	7	4	-	-
discuss equipment	6	8	6	1	1
bulletin boards	6	11	5	-	-

N = 22

<sup>1</sup>Council members were asked to evaluate activities at the end of the seven months which encompassed the study period.

Table 6: Evaluation of student advisory council activities at Schlagle Senior High School<sup>1</sup>

activities	very worthwhile	somewhat worthwhile	okay, unsure	somewhat waste of time	not worthwhile
Type A requirements	5	2	1	-	-
cafeteria decorations	2	4	2	-	-
posters and displays	-	6	2	-	-
tour of kitchen	7	-	-	-	-
sampling new foods	2	5	1	-	-
discuss equipment	2	-	-	1	-
bulletin boards	4	3	-	1	-
china selection	3	4	1	-	-

N = 8

<sup>1</sup>Council members were asked to evaluate activities at the end of the seven months which encompassed the study period.

Table 7: Interest in repeating activities of student advisory council  
(Central Junior High School)

activities	definitely yes	yes, probably	definitely no
Type A requirements	10	12	-
decorate cafeteria	10	10	2
posters and displays	9	12	1
tour of kitchen	12	8	2
plan a school menu	19	3	-
sampling new foods	12	10	-
discuss equipment	5	15	2
bulletin boards	6	13	3

N = 22

Type A requirements and discussing equipment (Table 8). This was noted particularly since the students believed the discussion of equipment was sufficiently interesting to repeat, although it was one of the activities rated lowest in the evaluation of council activities. Planning a school menu was not included as an activity at the senior high school because of initial lack of interest when planning council activities; therefore, this activity was not rated for repeat activity.

In the rating of interest in additional activities that might be pursued (Table 9), the senior high council indicated the greatest interest in touring the school district's central kitchen while the junior high council again selected planning a school menu. Results indicated the least interest in attending a food show; however, the junior high students

Table 8: Interest in repeating activities of student advisory council (Schlagle Senior High School)

activities	definitely yes	yes probably	definitely no
Type A requirements	6	2	-
cafeteria decorations	4	4	-
posters and displays	3	4	-
tour of kitchen	7	-	-
sampling new food	3	3	-
discuss equipment	6	1	-
bulletin boards	4	3	-
china selection	5	3	-

N = 8

Table 9: Student advisory council interest in additional foodservice-related activities

activities	school	very interested	somewhat interested	not interested
tour of central kitchen	Central Jr.	13	8	1
	Schlagle Sr.	7	1	-
attend a food show	Central Jr.	8	10	4
	Schlagle Sr.	1	5	1
participate in buzz session	Central Jr.	11	8	3
	Schlagle Sr.	5	3	-
plan a menu for your school	Central Jr.	20	2	-
	Schlagle Sr.	3	5	-

N = 22, Central Jr.

N = 8, Schlagle Sr.

were more interested than those in senior high. Students probably have not had an opportunity to attend a food show and were not acquainted with the meaning of such an activity.

### Assessment of Student Attitudes

#### General Information

Approximately one-third of each grade level in the four project schools completed the thirty-one item student attitude instrument. The sample included an approximately equal distribution of males and females; however, the study samples at the two experimental schools, Central Junior High and Schlagle Senior High, revealed a higher percentage of females than was true for the school populations (Table 10). Data in Table 10 describes the four groups participating in the pretest which was administered before the advisory councils were initiated at the two experimental schools. This was the same basic group for the posttest which was administered at the end of the study period, approximately 125 school days later, after the advisory councils had completed the program of activities.

Students were asked to indicate their usual source of lunch during the school week (Table 11). A majority of the students ate the Type A school lunch during both the pretest and posttest periods at all four project schools. Central Junior High had the highest percentage of reported Type A school lunch participation during both the pretest and posttest periods (73.6 per cent and 66.4 per cent). The higher percentage of participation reported by students at Central Junior High may be attributed to the larger percentage of students who qualified for free and reduced price lunches at that school as stated previously. All secondary schools (both junior and senior highs) have "closed campus"



Table 10: Comparison of study sample and student body composition by classification and sex

	school population		study sample	
	N	%	N	%
Arrowhead Jr. <sup>1</sup>				
total	742	100.0	212	100.0
seventh grade	234	31.5	67	31.6
eighth grade	223	30.1	72	34.0
ninth grade	285	38.4	73	34.4
male	362	48.8	93	43.9
female	380	51.2	119	56.1
Central Jr. <sup>2</sup>				
total	1099	100.0	284	100.0
seventh grade	365	33.2	93	32.7
eighth grade	354	32.2	96	33.8
ninth grade	380	34.6	95	33.5
male	582	53.0	126	44.5
female	517	47.0	157	55.5
Washington Sr. <sup>1</sup>				
total	2047	100.0	502	100.0
sophomores	745	36.4	161	32.1
juniors	668	32.6	160	31.8
seniors	634	31.0	181	36.1
male	1017	49.7	238	47.4
female	1030	50.3	264	52.6
Schlagle Sr. <sup>2</sup>				
total	1451	100.0	346	100.0
sophomores	497	34.3	136	39.3
juniors	514	35.4	95	27.5
seniors	440	30.3	115	33.2
male	750	51.7	144	41.6
female	701	48.3	202	58.4

<sup>1</sup>Control schools--student advisory councils were not initiated.

<sup>2</sup>Experimental schools--student advisory councils were initiated.

Table 11: Source of lunch for secondary students

source		Arrowhead <sup>1</sup>	Central <sup>2</sup>	Washington <sup>1</sup>	Schlagle <sup>2</sup>
		Jr.	Jr.	Sr.	Sr.
		%	%	%	%
school lunch	pre <sup>3</sup>	71.7	73.6	69.3	58.4
	post <sup>4</sup>	59.3	66.4	60.2	57.0
snack bar	pre	40.6	23.2	31.7	29.2
	post	40.2	30.6	32.4	28.9
a la carte	pre	2.4	0.7	5.0	6.4
	post	2.1	1.9	8.1	8.7
sack lunch	pre	4.2	6.3	4.0	9.8
	post	5.4	4.2	4.3	8.1

<sup>1</sup>Control schools

Arrowhead Jr. N = 212, pretest; N = 241, posttest.

Washington Sr. N = 502, pretest; N = 447, posttest.

<sup>2</sup>Experimental schools

Central Jr. N = 284, pretest; N = 265, posttest.

Schlagle Sr. N = 346, pretest; N = 298, posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

policies that do not allow students to leave the campus during the lunch period which has a definite influence on school lunch participation.

Data from Arrowhead Junior High showed the greatest fluctuation of reported participation between the pretest period (71.7 per cent) and the posttest period (59.3 per cent). Data from all schools indicated a decrease in reported Type A school lunch participation between the pretest and posttest periods.

Approximately one-third of the students at all the schools indicated that they purchased foods from the snack bar for lunch, with only a small

variation between the pretest and posttest periods at all four schools. Student response from the two junior high schools indicated a smaller percentage purchased foods a la carte compared to the senior high school response. Perhaps the junior high school students, however, were not familiar with the definition of a la carte.

Students were asked to indicate the number of times per week that they ate the Type A lunch (Table 12). Junior high school student responses indicated a higher percentage of frequent participants (those who ate the school lunch three or more times a week) than did the senior high school student responses. Central Junior High School had the largest number of frequent participants. Schlagle Senior High School responses showed an equal number of students that ate every day and that rarely or never ate lunch. The pattern of responses did not seem to reflect any effect of the council activities on reported school lunch participation.

#### Factors Affecting Participation

Frequent participants were asked to indicate reasons for eating the school lunch (Table 13). Responses were basically the same for the pretest and posttest. Almost 50 per cent or more of the students responded that they ate the school lunch because they liked the food. Another key factor appeared to be that the students ate the school lunch because their friends did also; although, parental influence was an important force, particularly for the junior high students and the students at one of the high schools (Washington Senior High). The low price was a reason indicated more frequently by the students at Washington High School compared to those at the other schools.

Table 12: Frequency of participation in Type A school lunch

source		Arrowhead <sup>1</sup>	Central <sup>2</sup>	Washington <sup>1</sup>	Schlagle <sup>2</sup>
		Jr.	Jr.	Sr.	Sr.
		%	%	%	%
everyday	pre <sup>3</sup>	36.4	46.6	29.7	29.7
	post <sup>4</sup>	25.8	39.8	26.3	30.4
3-4 times a week	pre	31.6	21.4	33.3	23.6
	post	32.9	20.5	29.2	23.3
1 or 2 times a week	pre	19.6	17.4	17.0	18.4
	post	27.9	24.2	23.6	16.9
rarely or never	pre	12.4	14.6	20.0	27.4
	post	12.5	14.8	20.5	29.1

<sup>1</sup>Control schools

Arrowhead Jr. N = 209, pretest; 238, posttest.

Washington Sr. N = 505, pretest; 447, posttest.

<sup>2</sup>Experimental schools

Central Jr. N = 281, pretest; 262, posttest.

Schlagle Jr. N = 344, pretest; 295, posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

Table 13: Factors influencing frequency of participation in school lunch program

reasons frequent participants <sup>1</sup> eat school lunch		Arrowhead <sup>2</sup>	Central <sup>3</sup>	Washington <sup>2</sup>	Schlagle <sup>3</sup>
		Jr. (N=142, pre) (N=141, post)	Jr. (N=191, pre) (N=159, post)	Sr. (N=318, pre) (N=249, post)	Sr. (N=185, pre) (N=159, post)
		%	%	%	%
like the food	pre <sup>4</sup>	67.6	51.8	55.0	54.1
	post <sup>5</sup>	48.2	55.3	55.0	49.1
friends eat there	pre	32.4	51.3	53.8	44.9
	post	46.1	48.4	57.4	56.0
parents want me to	pre	37.3	38.2	47.3	29.2
	post	44.0	45.9	38.2	30.2
price is low	pre	13.4	21.5	37.4	15.1
	post	20.6	22.0	38.6	25.8
reasons infrequent participants <sup>1</sup> do not eat school lunch		(N=67, pre) (N=97, post)	(N=90, pre) (N=103, post)	(N=187, pre) (N=198, post)	(N=159, pre) (N=136, post)
		%	%	%	%
don't like the food	pre	67.2	78.9	67.9	71.1
	post	83.5	72.8	65.7	62.5
friends and I bring lunch	pre	13.4	23.3	12.8	17.0
	post	21.6	15.5	16.2	19.9
sack lunch is cheaper	pre	14.9	23.3	16.0	22.6
	post	17.5	21.4	11.6	23.5
have food allergies	pre	1.5	6.7	8.0	5.0
	post	5.1	9.7	9.1	9.6
buy from snack bar	pre	59.7	68.9	59.9	62.3
	post	66.0	73.8	55.6	56.6

<sup>1</sup>Frequent participants were those students who ate the school lunch 3 or more times a week; infrequent participants were those students who ate less than 3 times a week.

<sup>2</sup>Control schools.

<sup>3</sup>Experimental schools.

<sup>4</sup>Pre = pretest; administered at the beginning of the school year.

<sup>5</sup>Post = posttest; administered at the end of the study period.

Infrequent participants (those who ate the school lunch less than three times a week) indicated reasons they did not participate in the school lunch program. On both the pretest and posttest, the most frequent reason given was, "don't like the food." The next highest response for not participating was, "buy lunch from the snack bar."

Students were asked to indicate factors that influenced participation in the school lunch program (Table 14). Over 50 per cent of the students in three schools reported they were encouraged to participate in the school lunch program by their parents; however, at Schlagle Senior High School, less than 50 per cent of the respondents indicated parental encouragement. In all schools, parental encouragement declined from 5 to 10 per cent between the pretest and the posttest.

Teacher support of the school lunch program seemed to have the strongest impact on student response at Central Junior High School where 28 per cent of the students responded that their teachers encouraged participation in the school lunch program. Although not a response included on the attitude survey, observation revealed a greater percentage of the Central Junior High School faculty participated in the lunch program than at the other three schools.

Students were asked to indicate how far ahead they knew what was being served at school. At Central Junior High School, a majority of students responded that they knew the day before lunch, while students at the other three schools indicated they knew the menu when they got to the lunch line. This was reinforced by data from responses to the question, "how are you informed about the school lunch menus?" (Table 15). Weekly menus are posted in each classroom at Central Junior High School while menu boards in the lunch room are used in the two senior high schools.

Table 14: Factors influencing participation in school lunch program

item	Arrowhead Jr. <sup>1</sup>		Central Jr. <sup>2</sup>		Washington Sr. <sup>1</sup>		Schlagle Sr. <sup>2</sup>		
	pre <sup>3</sup>	post <sup>4</sup>	pre	post	pre	post	pre	post	
	%	%	%	%	%	%	%	%	
4. Do your parents encourage you to eat school lunch?	yes	60.0	50.0	55.0	50.6	60.4	53.5	46.7	35.6
	no	39.5	49.2	44.3	49.4	39.1	45.9	53.0	63.1
5. Do your teachers encourage you to eat school lunch?	yes	15.7	13.9	28.0	30.6	23.7	21.5	15.9	11.1
	no	84.3	85.2	71.6	69.4	75.9	78.1	83.5	86.6
7. How far ahead do you know what is being served at school? the day before lunch the morning before lunch when I get in the lunch line	yes	17.6	18.8	46.3	39.5	6.7	4.9	7.2	12.1
	no	28.8	36.3	33.0	43.2	14.0	14.1	15.0	19.3
	when I get in the lunch line	53.7	44.6	20.7	17.3	79.1	80.6	77.2	66.9

<sup>1</sup>Control schools

Arrowhead Jr. N varies from 205 to 210 on pretest; 237 to 240 on posttest.  
Washington Sr. N varies from 506 to 510 on pretest; 449 to 453 on posttest.

<sup>2</sup>Experimental schools

Central Jr. N varies from 282 to 285 on pretest; 265 to 267 on posttest.  
Schlagle Sr. N varies from 345 to 352 on pretest; 290 to 298 on posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

Table 15: Source of information about school lunch menu

source		Arrowhead <sup>1</sup>	Central <sup>2</sup>	Washington <sup>1</sup>	Schlagle <sup>2</sup>
		Jr.	Jr.	Sr.	Sr.
		%	%	%	%
daily announcements	pre <sup>3</sup>	3.3	1.4	1.4	2.9
	post <sup>4</sup>	4.1	3.8	2.0	3.0
menu board	pre	28.8	15.8	74.3	76.3
	post	41.9	20.8	76.5	72.8
posted in classroom	pre	6.1	73.2	8.6	2.9
	post	5.8	66.4	6.5	10.7
newspaper	pre	52.4	11.3	18.5	19.9
	post	42.7	10.2	16.8	12.1

<sup>1</sup>Control schools

Arrowhead Jr. N = 212, pretest; N = 241, posttest.

Washington Sr. N = 502, pretest; N = 447, posttest.

<sup>2</sup>Experimental schools

Central Jr. N = 284, pretest; N = 265, posttest.

Schlagle Sr. N = 346, pretest; N = 298, posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

Arrowhead Junior High School did not post the menus or have a menu board; a higher percentage of those students (55.4 per cent pretest; 42.7 per cent posttest) used the newspaper as the source of lunch information. Daily announcements over the public address system were not used regularly at any of the four project schools.

Although it is difficult to pinpoint direct influences, it was interesting that at one of the experimental schools, Central Junior High, the students were encouraged by teachers to a greater extent than in other schools and had advance information through classroom posting of menus and



also, had the highest percentage of reported participation. The fact that the highest percentage of free and reduced price meals was served at this school complicates analysis of the factors influencing participation, however.

#### Analysis of Food and Nonfood Attitude Scores and Items

Attitudes toward various aspects of the school foodservice program were assessed by twelve items. Four of the items measured reactions to the food and eight, reactions to the lunchroom environment. Responses for ten items were weighted one, two, and three with the most positive response weighted highest; two items were scored on a two-point scale. Two scores were computed, a food and nonfood score. The food score is the sum of the scores on the food related items and the nonfood score is the sum of the nonfood item scores. Both the scores and the individual items were analyzed to study attitudes.

Attitude Scores. Mean food and nonfood attitude scores by school are shown in Table 16. The food scores were lower at the two junior highs at the time of the posttest administration compared to the pretest. The nonfood scores were lower at all four schools on the posttest. These negative scores may be attributed to the time of the school year in which the survey was administered. The pretest had been given only a few weeks after the beginning of the school year when students may have a better attitude toward school in general. The posttest was administered late in the school year, prior to a holiday. Students may have been ready for a vacation which could have had a negative effect on their attitude.

Significant differences were found between scores from all schools with the exception of Arrowhead Junior High and Washington Senior High

Table 16: Food and nonfood attitude scores by school

schools	pretest <sup>1</sup>		F ratio <sup>3</sup>	posttest <sup>2</sup>		F ratio
	N	mean s.d.		N	mean s.d.	
Arrowhead Jr. <sup>5</sup>	214	8.31 ± 1.72	9.21***	242	7.64 ± 1.80	16.19***
Central Jr. <sup>6</sup>	286	8.64 ± 1.72		269	8.20 ± 1.77	
Washington Sr. <sup>5</sup>	514	8.48 ± 1.63		460	8.57 ± 1.74	
Schlagle Sr. <sup>6</sup>	353	8.00 ± 1.65		308	8.05 ± 1.62	
		<u>food score<sup>4</sup></u>				
Arrowhead Jr.	214	16.22 ± 2.69	12.99***	242	15.47 ± 2.66	24.63***
Central Jr.	286	15.97 ± 2.70		269	15.45 ± 2.52	
Washington Sr.	514	16.95 ± 2.30		460	16.85 ± 2.40	
Schlagle Sr.	353	16.12 ± 2.41		308	15.84 ± 2.73	
		<u>nonfood score<sup>4</sup></u>				

<sup>1</sup>Pre = pretest; administered at the beginning of the school year.

<sup>2</sup>Post = posttest; administered at the end of the study period.

<sup>3</sup>One-way analysis of variance; least significant differences were computed to study differences between means. Lines between means indicate significant differences.

<sup>4</sup>Food score = Σ of food related item scores.  
Nonfood score = Σ of nonfood related item scores.

<sup>5</sup>Control schools.

<sup>6</sup>Experimental schools.

\*\*\* P ≤ .001

Schools on the pretest food score. These students live in the same geographical area and apparently may have similar attitudes concerning food. On the posttest food score, significant differences were noted between all schools with the most negative attitudes found among the Arrowhead students. A number of significant differences on the nonfood attitude score were found among data from the four project schools; actual differences, however, were small. Overall, the pattern of scores did not indicate a positive impact from the student council activities on the students' attitudes. This was not surprising since there are a myriad of influences not accounted for in this study.

Frequency of participation in the school lunch program also was analyzed in relation to attitude scores (Table 17). For both the pretest and posttest there were significant differences in the scores of the frequent and infrequent participants. Apparently, students who had a negative attitude toward the school foodservice were less likely to participate in the Type A lunch program. Previous studies by Garrett (5), Gargano (67), and Gutsch (85) also found that frequent participants were more positive in their reactions than were infrequent participants.

Analysis of Attitude Items. In addition to the analyses of attitude scores, food and nonfood related items were analyzed individually. The food related items were concerned with size of servings, temperature of foods, and perception of usual amount of food consumed. The nonfood related items pertained to lunch room noise and cleanliness, cooks' and cashiers' attitudes, lunch room atmosphere, perception of time allowed for lunch, and supervision of lunch room. Tables 26 and 27 (Appendix F) enumerate percentage responses on the attitude items.

Table 17: Relationship between attitude scores and frequency of participation in the school lunch

frequency of participation	pretest <sup>1</sup>		F ratio <sup>3</sup>	posttest <sup>2</sup>		F ratio
	N	mean s.d.		N	mean s.d.	
everyday	461	8.68 ± 1.67	15.64***	376	8.46 ± 1.75	8.03***
3-4 times a week	376	8.49 ± 1.61		335	8.33 ± 1.74	
1 or 2 times a week	241	8.20 ± 1.65		288	8.05 ± 1.74	
rarely or never	263	7.84 ± 1.75		247	7.81 ± 1.83	
		<u>food score<sup>4</sup></u>				
		<u>nonfood score<sup>4</sup></u>				
everyday	461	16.77 ± 2.54	5.24**	376	16.20 ± 2.69	3.21*
3-4 times a week	376	16.36 ± 2.40		335	16.06 ± 2.52	
1 or 2 times a week	241	16.26 ± 2.57		288	16.18 ± 2.59	
rarely or never	263	16.06 ± 2.56		247	15.59 ± 2.75	

<sup>1</sup>Pre = pretest; administered at the beginning of the school year.

<sup>2</sup>Post = posttest; administered at the end of the study period.

<sup>3</sup>One-way analysis of variance; least significant differences computed to study differences among means. Lines between means indicate significant differences.

<sup>4</sup>Food score =  $\Sigma$  of food related item scores.  
Nonfood score =  $\Sigma$  of nonfood related item scores.

\* P < .05

\*\* P < .01

\*\*\* P < .001

Size of servings was the aspect related to acceptability of food on the Type A lunch that seemed of greatest concern to the students at all four schools (Table 18). Reactions to the temperature of the foods were somewhat negative at all the schools. The item related to consumption of food was rated highest of the four food-related items at all schools. The relatively high rating would indicate a fairly good acceptance of the food served on the school lunch menu.

Significant differences were found at three project schools on food related items when comparing pretest and posttest ratings by school (Table 18). Arrowhead Junior High School students' item scores were significantly lower on three of the four food related items, "size of servings is right," "cold foods cold," and "eat most of food." At Central Junior, students rated the temperature of the food as more of a problem at the end of the study period. At Washington Senior, students were more positive at the posttest on the size of servings; whereas, data from Schlagle Senior indicated no significant differences between pretest and posttest ratings on food related items.

Overall, the students reactions to the lunch room environment were fairly positive (Table 18). "Lunch room is cheerful" and "lunch is rushed" were the two aspects of the nonfood factors that had the lowest ratings. Attitudes varied little from the beginning to the end of the study period at Central Junior and Washington Senior. At Central, the students were more concerned about the cleanliness and cheerfulness of the lunch room at the time of the posttest; whereas, only the noise was a greater concern to the students at Washington on the posttest.

At Arrowhead Junior High, students rated four items significantly lower on the posttest, those related to the noise, cheerfulness and

Table 18: Scores on food and nonfood items by school<sup>1,2</sup>

items	Arrowhead Jr. <sup>3</sup>			Central Jr. <sup>4</sup>				
	pretest <sup>5</sup> mean s.d.	posttest <sup>6</sup> mean s.d.	t value <sup>7</sup> P	pretest mean s.d.	posttest mean s.d.	t value P		
<u>food related items</u>								
size of servings is right	1.59±0.76	1.45±0.66	2.15	0.03	1.94±0.83	1.86±0.82	1.07	0.29
hot foods hot	1.91±0.67	1.81±0.67	1.62	0.11	2.11±0.65	1.99±0.64	2.15	0.03
cold foods cold	2.21±0.81	1.97±0.83	2.98	0.00	2.24±0.79	2.05±0.81	2.86	0.00
eat most of food	2.61±0.59	2.41±0.66	3.49	0.00	2.36±0.65	2.31±0.70	0.91	0.37

<sup>1</sup>Higher score = more positive response. All items scored on 3 point scale, except two starred (\*) items which were scored on 2 point scale.

<sup>2</sup>Pretest; Arrowhead Jr. N varies from 206 to 214.  
Central Jr. N varies from 274 to 286.  
Washington Sr. N varies from 494 to 514.  
Schlagle Sr. N varies from 337 to 353.

Posttest; Arrowhead Jr. N varies from 232 to 242.  
Central Jr. N varies from 258 to 269.  
Washington Sr. N varies from 432 to 460.  
Schlagle Sr. N varies from 265 to 308.

<sup>3</sup>Control school--no advisory group was organized.

<sup>4</sup>Experimental school--advisory group was organized.

<sup>5</sup>Administered at the beginning of the school year.

<sup>6</sup>Administered at the end of the study period.

<sup>7</sup>t test for two independent samples; probability level is indicated.

Higher score = more positive response. All items scored on 3 point scale, except two starred (\*) items which were scored on 2 point scale.

Table 18: (cont.)

items	Arrowhead Jr.			Central Jr.				
	pretest mean s.d.	posttest mean s.d.	t value	P	pretest mean s.d.	posttest mean s.d.	t value	P
<u>nonfood related items</u>								
lunch room is noisy	2.50±0.79	2.35±0.89	1.95	0.05	2.56±0.72	2.56±0.72	0.03	0.98
lunch room is clean	2.24±0.79	2.12±0.79	1.53	0.13	2.09±0.80	1.86±0.83	5.30	0.00
servers are friendly	2.30±0.85	2.20±0.87	1.22	0.22	2.36±0.80	2.25±0.83	1.61	0.11
cashiers are friendly	2.44±0.70	2.30±0.77	2.01	0.05	2.23±0.76	2.16±0.81	1.00	0.32
lunch room is cheerful	1.96±0.56	1.83±0.59	2.34	0.02	1.98±0.55	1.85±0.51	2.72	0.01
lunch is rushed	1.76±0.81	1.82±0.82	0.43	0.67	1.82±0.81	1.89±0.85	0.94	0.35
*line speed is right	1.41±0.49	1.37±0.48	0.92	0.36	1.27±0.45	1.25±0.44	0.51	0.61
*supervision is right	1.63±0.49	1.50±0.50	2.80	0.01	1.67±0.47	1.63±0.48	1.02	0.31
<u>food related items</u>								
size of servings is right	1.67±0.79	1.79±0.79	2.16	0.03	1.67±0.75	1.71±0.75	0.19	0.85
hot foods hot	2.12±0.62	2.10±0.63	0.63	0.53	1.86±0.60	1.91±0.62	1.01	0.31
cold foods cold	2.06±0.81	2.08±0.79	0.53	0.60	2.03±0.80	2.02±0.79	0.12	0.91
eat most of food	2.65±0.57	2.63±0.61	0.47	0.64	2.42±0.65	2.44±0.67	0.42	0.68

Washington Sr.<sup>3</sup>Schlagle Sr.<sup>4</sup>

Table 18: (cont.)

items	Washington Sr.			Schlagle Sr.				
	pretest mean s.d.	posttest mean s.d.	t value	P	pretest mean s.d.	posttest mean s.d.	t value	P
<u>nonfood related items</u>								
lunch room is noisy	2.68±0.66	2.55±0.73	2.87	0.00	2.66±0.66	2.46±0.79	3.48	0.00
lunch room is clean	2.18±0.84	2.15±0.86	0.53	0.60	2.22±0.81	2.20±0.85	0.39	0.70
servers are friendly	2.69±0.60	2.69±0.60	0.17	0.87	2.25±0.81	2.25±0.84	0.09	0.93
cashiers are friendly	2.59±0.62	2.64±0.60	1.19	0.24	2.45±0.70	2.30±0.81	2.47	0.01
lunch room is cheerful	1.96±0.54	1.92±0.57	1.10	0.27	1.95±0.52	1.88±0.57	1.56	0.12
lunch is rushed	1.55±0.78	1.61±0.76	1.18	0.24	1.86±0.79	2.03±0.85	2.71	0.01
*line speed is right	1.56±0.50	1.57±0.50	0.34	0.74	1.19±0.39	1.39±0.49	5.46	0.00
*supervision is right	1.81±0.40	1.81±0.40	0.04	0.94	1.56±0.50	1.37±0.48	4.88	0.00



supervision of the lunch room, and the item related to perceived attitude of the cashiers. Interestingly, at Schlagle Senior High, the students were more positive on two aspects, but more negative on three at the end of the study period; "lunch is rushed" and the "line speed is rushed" were of less concern. This could be explained by the fact that enrollment is less and the number of students attending full-time is lower during the second semester.

Attitude items also were analyzed in relation to frequency of participation (Table 19). In all but a few instances, the frequent participants' scores were higher than those of the infrequent participants. Of the ten tests of significance where pretest and posttest scores were significantly different, the frequent participants' scores were higher on all but one. These findings corroborate those of the overall food and nonfood scores reported above.

#### Overall Opinion of School Foodservice Program

As an overall measure of attitudes, students were asked to rate the school lunch program as good, fair, or poor (Table 20). Approximately two-thirds of the students rated the school lunch program in their school as only fair on both the pretest and posttest. Fairly small percentages of the students, however, rated the program as poor. Also, there was little change from pretest to posttest, except at Arrowhead Junior High. At that school there was a notable shift, from 12.9 to 25 per cent indicating the program was "poor."

Students were also asked to indicate the types of choices in school lunch menu they desired (Table 21). In all four schools, students showed the strongest desire for a choice of main dishes, compared to desire for

Table 19: Relationship between items<sup>1</sup> on attitude scales and frequency of participation in the school lunch<sup>2</sup>

items	pretest <sup>3</sup>		t value <sup>7</sup>	P	posttest <sup>4</sup>		t value	P
	frequent <sup>5</sup> mean s.d.	infrequent <sup>6</sup> mean s.d.			frequent mean s.d.	infrequent mean s.d.		
<u>food related items</u>								
size of serving is right	1.75±0.79	1.69±0.79	1.21	0.23	1.74±0.78	1.70±0.79	0.91	0.36
hot foods hot	2.08±0.65	1.92±0.62	4.24	0.00	2.02±0.65	1.91±0.63	3.10	0.00
cold foods cold	2.16±0.80	2.05±0.81	2.41	0.02	2.06±0.79	2.01±0.82	1.01	0.31
eat most of food	2.63±0.56	2.36±0.70	7.56	0.00	2.59±0.60	2.33±0.71	6.72	0.00

<sup>1</sup>Higher score = more positive response. All items scored on 3 point scale except for starred (\*) items which were scored on a 2 point scale.

<sup>2</sup>Data from all schools are grouped together.

N varies from 803 to 837 for frequent participants and from 480 to 504 for infrequent participants in the pretest. N varies from 676 to 711 for frequent participants and from 503 to 535 for infrequent participants in the posttest.

<sup>3</sup>Administered at the beginning of the school year.

<sup>4</sup>Administered at the end of the study period.

<sup>5</sup>Frequent participants were those students who ate the school lunch 3 or more times per week.

<sup>6</sup>Infrequent participants were those students who ate less than 3 times a week.

<sup>7</sup>t test for independent samples; probability level is indicated.

Table 19: (cont.)

items	pretest			posttest				
	frequent mean s.d.	infrequent mean s.d.	t value	P	frequent mean s.d.	infrequent mean s.d.	t value	P
<u>Nonfood related items</u>								
lunch room is noisy	2.58±0.73	2.68±0.65	2.58	0.01	2.47±0.80	2.50±0.76	0.77	0.44
lunch room is clean	2.21±0.81	2.14±0.83	1.47	0.14	2.09±0.84	2.10±0.85	0.04	0.97
servers are friendly	2.48±0.76	2.38±0.79	2.22	0.03	2.42±0.79	2.37±0.81	1.14	0.26
cashiers are friendly	2.48±0.70	2.41±0.70	1.80	0.07	2.44±0.75	2.34±0.76	2.21	0.28
lunch room is cheerful	2.00±0.54	1.88±0.53	3.98	0.00	1.90±0.54	1.85±0.58	1.52	0.13
lunch is rushed	1.74±0.81	1.70±0.81	0.99	0.33	1.78±0.81	1.81±0.83	0.77	0.44
*line speed is right	1.42±0.49	1.32±0.47	3.92	0.00	1.46±0.50	1.37±0.48	3.01	0.00
*supervision is right	1.70±0.46	1.67±0.47	1.16	0.25	1.62±0.49	1.60±0.49	0.55	0.58

Table 20: Student opinions of the school lunch program

opinion		Arrowhead <sup>1</sup>	Central <sup>2</sup>	Washington <sup>1</sup>	Schlagle <sup>2</sup>
		Jr.	Jr.	Sr.	Sr.
		%	%	%	%
good	pre <sup>3</sup>	17.7	23.0	22.6	16.2
	post <sup>4</sup>	11.9	16.9	21.4	18.1
fair	pre	69.4	64.1	61.2	64.2
	post	63.1	70.0	62.8	62.4
poor	pre	12.9	12.9	16.2	19.6
	post	25.0	13.1	15.8	19.5

<sup>1</sup>Control schools

Arrowhead Jr. N = 209, pretest; N = 236, posttest.

Washington Sr. N = 505, pretest; N = 444, posttest.

<sup>2</sup>Experimental schools

Central Jr. N = 278, pretest; N = 260, posttest.

Schlagle Sr. N = 346, pretest; N = 277, posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

Table 21: Types of choices in school lunch menu desired by secondary students

choices		Arrowhead <sup>1</sup>	Central <sup>2</sup>	Washington <sup>1</sup>	Schlagle <sup>2</sup>
		Jr.	Jr.	Sr.	Sr.
		%	%	%	%
two main dishes	pre <sup>3</sup>	66.5	65.8	57.0	50.9
	post <sup>4</sup>	70.5	67.9	56.2	45.6
vegetables	pre	26.9	19.4	28.5	20.2
	post	25.7	17.0	27.7	22.8
salads	pre	20.3	14.1	29.3	24.0
	post	22.4	18.1	28.4	24.5
desserts	pre	39.2	33.8	44.0	40.2
	post	42.7	40.0	42.7	33.6
condiment bar	pre	50.0	45.1	47.6	42.8
	post	36.9	50.9	45.9	38.3

<sup>1</sup>Control schools

Arrowhead Jr. N = 212, pretest; N = 241, posttest.

Washington Sr. N = 502, pretest; N = 447, posttest.

<sup>2</sup>Experimental schools

Central Jr. N = 284, pretest; N = 265, posttest.

Schlagle Sr. N = 346, pretest; N = 298, posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

choices of other menu items. The school lunch program at both senior high schools offers the choice of two entrees. Since entree choices were a regular service provided, the senior high students were obviously less concerned than were the junior high students. At all the schools, students were least concerned about vegetable and salad choices.

#### Interest in Involvement in School Foodservice-Related Activities

Mean interest in involvement attitude scores by school and by frequency of participation are shown in Table 22. Responses for the six attitude items were weighted one, two, and three with the response indicating the most interest weighted highest. The student involvement score is the sum of the score on the interest in involvement items.

Student interest in involvement scores at the two junior high schools were significantly higher than those of students at the two senior high schools on both the pretest and posttest. No significant differences were found on scores from the two junior high schools on the pretest and posttest. A significant difference was found between scores from the two senior high schools on the posttest. The experimental school students (Schlagle), where an advisory council was initiated, reflected greater interest than did those at the control school. Although not significant, the interest score at the junior high experimental school (Central) was higher than that from the assessment at the control junior high (Arrowhead). Interest also was greater at these two schools at the beginning of the study, however.

Frequent participants had significantly higher mean scores than did infrequent participants on both the pretest and posttest ratings for interest in involvement in foodservice related activities. These

Table 22: Interest in involvement attitude scores<sup>1</sup> by school and by frequency of participation

school	pretest <sup>2</sup>			posttest <sup>3</sup>				
	N	mean	s.d.	F ratio <sup>4</sup>	N	mean	s.d.	F ratio
Arrowhead Jr.	214	11.42	± 2.94		242	10.99	± 2.94	
Central Jr.	286	11.76	± 3.02		269	11.49	± 3.22	
Washington Sr.	514	9.96	± 3.06		460	9.23	± 3.09	
Schlagle Sr.	353	10.01	± 2.97	31.66***	308	9.80	± 3.03	37.87***
frequency of participation	N	mean	s.d.	F ratio	N	mean	s.d.	F ratio
everyday	461	11.03	± 3.17		376	10.60	± 3.33	
3-4 times a week	376	10.67	± 3.03		335	10.07	± 3.17	
1 or 2 times a week	241	10.46	± 3.06		288	10.24	± 3.20	
rarely or never	263	9.86	± 3.08	8.29***	247	9.44	± 3.15	6.61***

<sup>1</sup>Interest in involvement score =  $\Sigma$  of scores on items related to interest in involvement in food-service-related activities.

<sup>2</sup>Administered at the beginning of the school year.

<sup>3</sup>Administered at the end of the study period.

<sup>4</sup>One way analysis of variance; least significant differences computed to study differences among means. Lines between means indicate significant differences.

\*\*\* P  $\leq$  .001

findings were not surprising because of the results reported earlier regarding other aspects of school foodservice related attitudes.

In the analysis of the individual items, providing entertainment during meal service was an activity rated highly at all four schools (Table 23). At the two junior highs, planning a menu was of more interest than at the senior highs. Overall, the junior high students were more interested in becoming involved in all activities than were the senior high students.

Touring the kitchen was an item rated fairly high in rank ordering the interest responses at each school. Decreases in interest from pretest to posttest were most notable at Washington Senior High.

Of particular interest were the ratings related to service on an advisory committee. At the two experimental schools, the ratings were higher than at the companion control schools.

Interest in involvement items also was analyzed in relation to frequency of participation as shown in Table 24. Frequent participants rated five of the six items significantly higher on the pretest: "plan a menu," "provide art work," "work on publicity," "tour school kitchen," and "provide entertainment." On the posttest, ratings differed significantly on the following items: "serve on advisory" and "work on publicity." Frequent participants in both the pretest and posttest indicated more interest in foodservice involvement projects. The percentage responses to the interest in involvement items of the attitude survey are shown in Appendix F (Table 28).



Table 23: Scores on interest in involvement items by school<sup>1,2</sup>

items	Arrowhead Jr. <sup>3</sup>			Central Jr. <sup>4</sup>		
	pretest <sup>5</sup> mean s.d.	posttest <sup>6</sup> mean s.d.	t value <sup>7</sup> P	pretest mean s.d.	posttest mean s.d.	t value P
plan a menu	2.02±0.77	1.95±0.78	0.96	2.13±0.79	2.16±0.80	0.42
serve on advisory	1.82±0.72	1.83±0.77	0.21	1.98±0.81	1.97±0.78	0.08
provide art work	1.85±0.84	1.67±0.81	2.02	1.78±0.79	1.74±0.81	0.60
work on publicity	1.69±0.75	1.52±0.70	2.35	1.78±0.78	1.68±0.72	1.56
tour school kitchen	1.89±0.81	1.89±0.83	0.06	2.09±0.80	2.06±0.82	0.42
provide entertainment	2.31±0.85	2.04±0.88	1.11	2.00±0.88	1.85±0.87	2.02

<sup>1</sup>Higher score = more positive response. All items scored on 3 point scale.

<sup>2</sup>Pretest; Arrowhead Jr. N varies from 206 to 211.

Central Jr. N varies from 272 to 283.

Washington Sr. N varies from 478 to 495.

Schlagle Sr. N varies from 324 to 331.

Posttest; Arrowhead Jr. N varies from 223 to 236.

Central Jr. N varies from 252 to 255.

Washington Sr. N varies from 415 to 428.

Schlagle Sr. N varies from 250 to 272.

<sup>3</sup>Control school--no advisory group was organized.

<sup>4</sup>Experimental school--advisory group was organized.

<sup>5</sup>Administered at the beginning of the school year.

<sup>6</sup>Administered at the end of the study period.

<sup>7</sup>t test for two independent samples; probability level is indicated.

Table 23: (cont.)

items	Washington Sr. <sup>3</sup>				Schlagle Sr. <sup>4</sup>			
	pretest mean s.d.	posttest mean s.d.	t value	P	pretest mean s.d.	posttest mean s.d.	t value	P
plan a menu	1.67±0.73	1.56±0.73	2.28	0.02	1.70±0.74	1.60±0.74	1.58	0.12
serve on advisory	1.69±0.72	1.50±0.71	4.10	0.00	1.72±0.78	1.62±0.75	1.74	0.08
provide art work	1.53±0.72	1.45±0.70	1.64	0.10	1.49±0.69	1.46±0.73	0.49	0.62
work on publicity	1.46±0.70	1.31±0.61	3.52	0.00	1.38±0.63	1.37±0.61	0.38	0.71
tour school kitchen	1.77±0.80	1.60±0.77	3.18	0.00	1.74±0.78	1.69±0.81	0.78	0.43
provide entertainment	1.75±0.84	1.59±0.81	2.85	0.01	1.82±0.86	1.66±0.84	2.35	0.02

Table 24: Relationship between interest in involvement items<sup>1</sup> on attitude scales and frequency of participation in the school lunch<sup>2</sup>

items	pretest <sup>3</sup>			posttest <sup>4</sup>				
	frequency <sup>5</sup> mean s.d.	infrequent <sup>6</sup> mean s.d.	t value <sup>7</sup>	p	frequency <sup>5</sup> mean s.d.	infrequent <sup>6</sup> mean s.d.	t value	p
plan a menu	1.88±0.78	1.75±0.76	2.92	0.00	1.81±0.80	1.73±0.80	1.69	0.09
serve on advisory	1.80±0.77	1.77±0.76	0.70	0.49	1.75±0.78	1.63±0.75	2.63	0.01
provide art work	1.70±0.79	1.51±0.71	4.26	0.00	1.59±0.76	1.53±0.77	1.27	0.21
work on publicity	1.61±0.75	1.45±0.68	3.79	0.00	1.49±0.70	1.38±0.63	2.66	0.01
tour school kitchen	1.90±0.80	1.78±0.81	2.42	0.02	1.81±0.83	1.74±0.82	1.47	0.14
provide entertainment	1.94±0.87	1.80±0.86	2.68	0.01	1.79±0.89	1.69±0.82	1.90	0.06

<sup>1</sup>Higher score = more positive response. All items scored on 3 point scale.

<sup>2</sup>Data from all schools are grouped together. N varies from 787 to 805 for frequent participants and from 474 to 489 for infrequent participants in the pretest. N varies from 649 to 668 for frequent participants and from 479 to 507 for infrequent participants in the posttest.

<sup>3</sup>Administered at the beginning of the school year.

<sup>4</sup>Administered at the end of the study period.

<sup>5</sup>Frequent participants were those students who ate the school lunch 3 or more times per week.

<sup>6</sup>Infrequent participants were those students who ate less than 3 times a week.

<sup>7</sup>t test for independent samples; probability level is indicated.

## Participation among Project Schools

Participation data for the four project schools were compiled during the experimental period and during a similar period for the previous academic year. An average daily attendance (ADA) figure was calculated for the 1976-77 school year. This figure was used to determine percentage ADA participation (the ratio of students participating in the Type A lunch program in relation to the average daily attendance) for the comparison with the prior year, because daily attendance data were not available for the 1975-76 year.

A comparison of 1975-76 and 1976-77 mean ADA percentage participation by month for each of the four schools is shown in Table 25. Data from the two junior high schools showed a significant increase in student participation for 1976-77 during five of the seven months of the study period. During the months of January and February there were increases in participation also; however, the differences were not significant. Data from the two senior high schools revealed a small increase in participation over the previous year. A significant increase was noted at Washington Senior High during March only, while participation at Schlagle Senior High was significantly higher during September and October; however, there was no apparent explanation for these differences. The pattern of data does indicate a difference between the control and experimental schools.

Participation data based on daily student attendance for the 1976-77 study period are plotted in Figures 1-4. Also, Table 29 in Appendix F presents the statistical data by school. Examination of these data did not show a trend related to the initiation of the advisory councils.

Table 25: Comparison of 1975-76 and 1976-77 percentage ADA participation<sup>1</sup> by school

month	Arrowhead Jr. <sup>2</sup>			Central Jr. <sup>3</sup>			t value	t value
	1975-76 % participation mean	s.d.	1976-77 % participation mean	1975-76 % participation mean	s.d.	1976-77 % participation mean		
September	59.4 ± 4.6		69.3 ± 6.2	75.6 ± 1.0		80.6 ± 3.2	5.00***	3.92**
October	60.6 ± 5.8		70.1 ± 7.5	75.9 ± 3.8		79.6 ± 3.8	4.73***	5.21***
November	59.8 ± 6.0		65.8 ± 1.9	74.7 ± 2.9		79.8 ± 2.9	2.56*	2.78*
December	59.6 ± 8.9		66.8 ± 6.4	71.2 ± 4.7		75.6 ± 3.1	2.92**	3.19**
January	60.8 ± 6.8		65.3 ± 10.4	70.6 ± 7.2		72.5 ± 10.1	1.81	0.17
February	60.8 ± 6.0		62.7 ± 9.6	70.0 ± 4.0		72.1 ± 4.5	0.88	1.75
March	57.9 ± 6.8		66.6 ± 6.0	67.4 ± 3.6		75.7 ± 3.8	4.50***	8.85***

<sup>1</sup>Average daily attendance was computed by averaging the student attendance count during the study period for each school. Percentage ADA participation was computed by dividing the number of students participating in the Type A lunch program daily by the ADA.

<sup>2</sup>Control schools.

<sup>3</sup>Experimental schools.

\*  $P < .05$

\*\*  $P < .01$

\*\*\*  $P < .001$

Table 25: (cont.)

month	Washington Sr. 2			Schlagle Sr. 3			t value	t value
	1975-76 % participation mean s.d.	1976-77 % participation mean s.d.	%	1975-76 % participation mean s.d.	1976-77 % participation mean s.d.	%		
September	64.9 ± 4.2	65.9 ± 5.8	0.52	62.4 ± 3.9	68.1 ± 5.5	2.31*		
October	63.3 ± 5.8	64.3 ± 5.2	0.64	63.1 ± 4.5	67.3 ± 3.5	3.68***		
November	62.5 ± 5.3	63.3 ± 5.7	0.48	61.8 ± 5.1	61.5 ± 6.1	0.15		
December	60.4 ± 6.0	61.6 ± 4.9	0.60	56.2 ± 6.2	59.2 ± 3.6	1.87		
January	51.4 ± 16.4	53.5 ± 17.0	1.49	50.5 ± 9.4	54.0 ± 8.1	2.07		
February	50.0 ± 4.9	51.8 ± 4.2	1.24	50.0 ± 3.8	50.1 ± 3.9	0.09		
March	50.4 ± 7.3	55.2 ± 3.5	2.60*	48.4 ± 6.0	51.0 ± 4.6	1.68		



Fig. 1. Percentage participation for Arrowhead Junior  
High School (control)



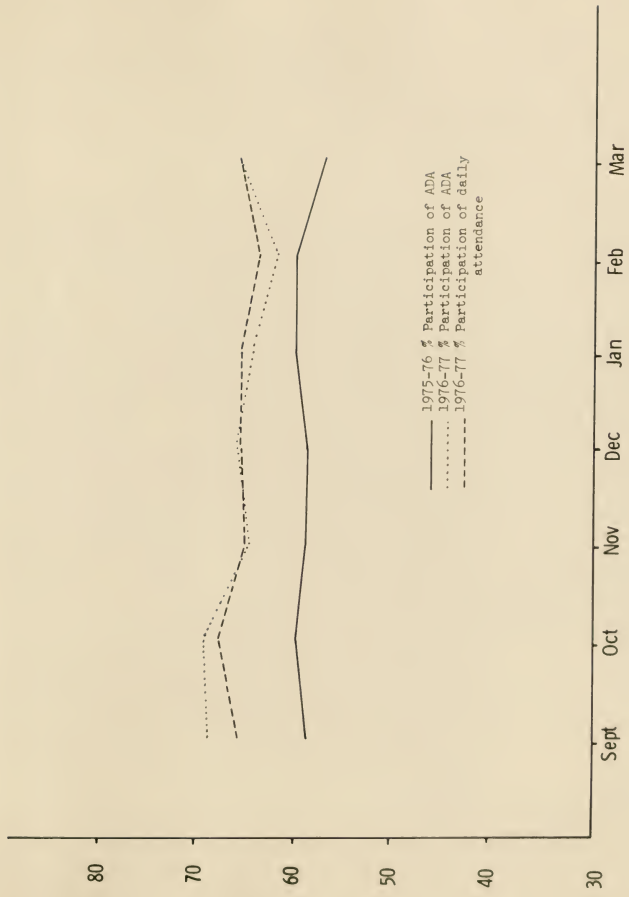


Fig. 2. Percentage participation for Central Junior High School (experimental)

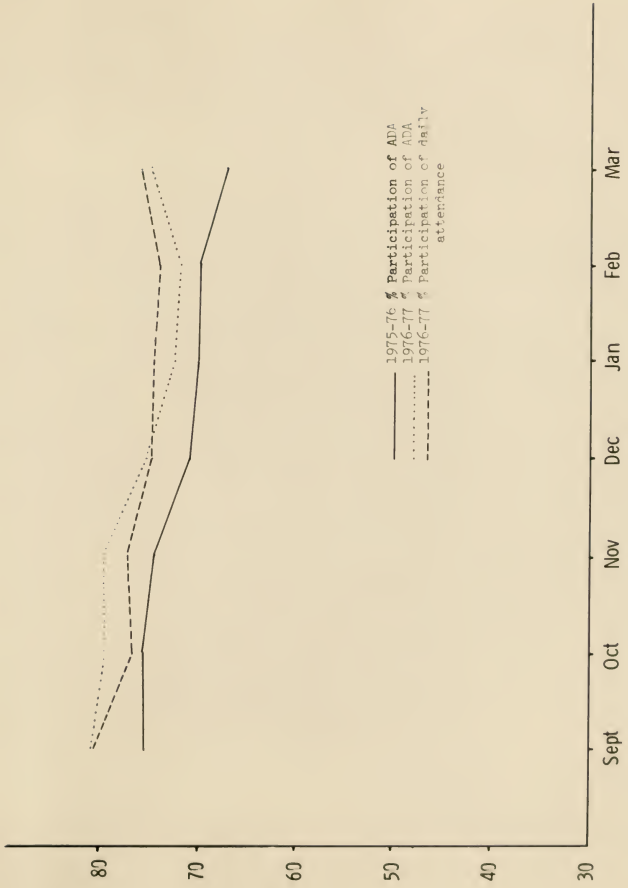


Fig. 3. Percentage participation for Washington Senior  
High School (control)

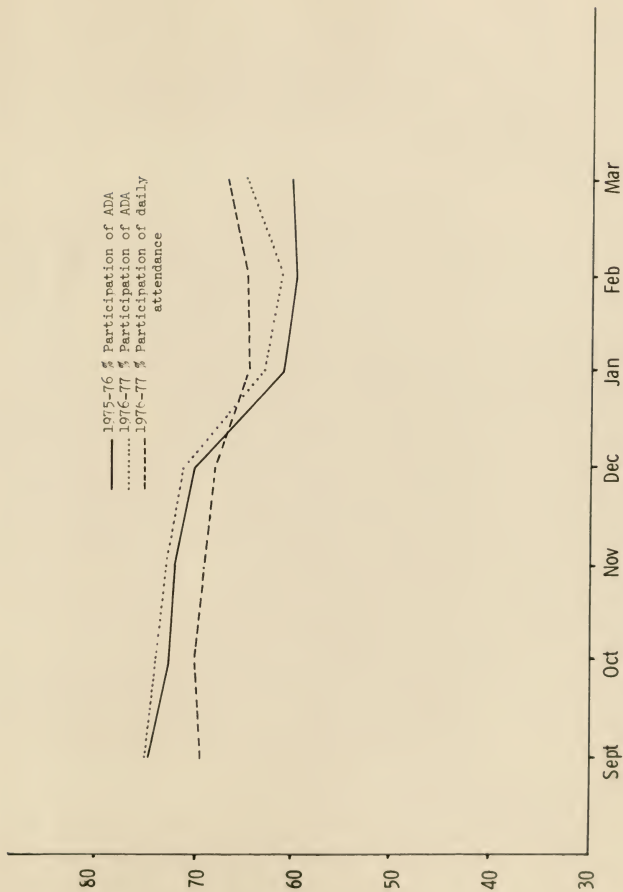
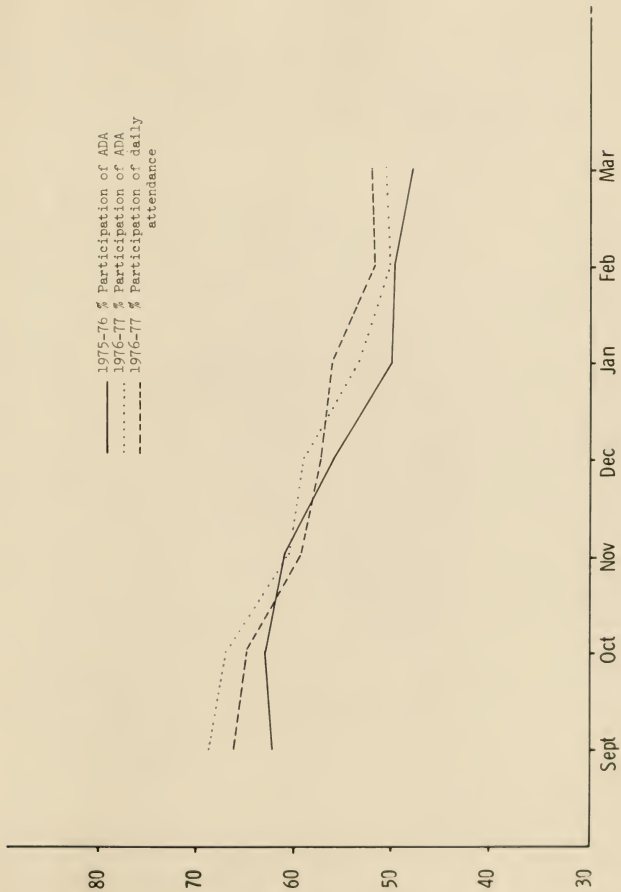


Fig. 4. Percentage participation for Schlagle Senior  
High School (experimental)



## SUMMARY AND CONCLUSIONS

Involving students in the school foodservice program has been an approach used to increase participation in the Type A lunch program and to stimulate student feedback. The objective of this project was to study the influence of involving secondary students in the school foodservice program on student participation in the Type A lunch program and attitudes of the students toward the school foodservice.

Four secondary schools (two junior and two senior highs) in Kansas City, Kansas were the sites for the study. Two schools served as controls for comparison purposes. The other two were designated as experimental schools. Implementation of student advisory councils in the experimental schools was the approach used for involving students in the program.

A foodservice attitude instrument was administered to approximately one-third of the students at each of the four project schools at the beginning of the academic year and at the end of the study period, approximately 125 school days later. Participation data were compiled daily during the study period at all four schools. Participation data for a similar period a year earlier also were compiled for comparative purposes.

Following the study period, members of the student advisory councils at the two experimental schools evaluated: (a) the food service involvement activities, (b) activities to repeat, and (c) interest in additional foodservice activities. The ratings reflected a high level of interest among council members at both schools. The junior high students rated



planning a school menu highest while the senior high council selected touring the school kitchen as the activity of greatest interest. Tour of the central kitchen rated highest for additional activities for both councils.

On the attitude survey, students were asked to indicate factors that influenced participation in the school lunch program. Frequent participants indicated that the most frequent reason for eating the school lunch was because they liked the food. The next highest response indicated that the students ate lunch because their friends ate there.

Differences were found in attitude scores among findings from the four project schools on both the pre- and posttests. Overall, however, the patterns of scores did not indicate an impact from the student advisory council activities.

Attitude scores also were analyzed in relation to frequency of participation in the school lunch program. Frequent participants had a more positive attitude toward the school foodservice while infrequent participants indicated a more negative attitude.

Mean interest in involvement scores on the attitude survey showed that junior high school students' scores were significantly higher than the senior high school students on both the pretest and posttest. Scores were higher on both the pretest and posttest at the two experimental schools; therefore, it was difficult to assess the actual impact of the advisory councils. Frequent participants also had greater interest in involvement in school foodservice-related activities.

Participation data reflected increases during the school year in which the study was conducted, compared to the prior year. Examination

of data did not show a trend related to the initiation of the advisory councils, however.

Overall assessments of responses of the total student body to the implementation of student foodservice advisory councils did not reflect measurable positive changes. Evaluation responses from members of the advisory councils did indicate a positive attitude toward the council activities, activities to repeat, and additional activities to include in future council plans.

Data from the project revealed a more positive student attitude toward school foodservice at the junior high level than at the senior high. The impact of the council activities at the junior high level may have been greater if members had been selected to represent all grade levels (7-9) within the school. Also, repeated and follow-up activities would be more easily implemented if council membership permitted some continuity from year to year. A principal at one of the experimental schools indicated that perhaps the real thrust of the project was that students were more tolerant of the school foodservice program because the students seemed to be more aware of constraints imposed by federal regulations.

Assessment of the effectiveness of student advisory councils over a longer period of time might show a more definitive impact. Perhaps the period of time encompassed by the study was too limited to measure the effects of such a project. Other measures may be needed for a complete evaluation, such as amount of plate waste, student knowledge of the program, or changes in students' eating habits. Also, even though a small group of students was directly affected, the positive reactions of these students can certainly be seen as a meaningful outcome.

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## APPENDIXES

APPENDIX A  
Advisory Group Evaluation Form

At this time, we would like to thank you for your fine cooperation shown at the food service advisory group meetings this past year. In order to determine the value of the advisory group, we would like your honest rating of the various activities.

Please check (✓) the one that best describes your feeling toward each activity.

#### A. Activities

1. Introduction to the Type A lunch requirements

very worthwhile; really worth my time

somewhat worthwhile

okay or unsure

somewhat a waste of time

not worthwhile; a real waste of time

3. Display of posters and other informative material

very worthwhile; really worth my time

somewhat worthwhile

okay or unsure

somewhat a waste of time

not worthwhile; a real waste of time

2. Decorating the cafeteria for the holidays

very worthwhile; really worth my time

somewhat worthwhile

okay or unsure

somewhat a waste of time

not worthwhile; a real waste of time

4. Tour of the school kitchen

very worthwhile; really worth my time

somewhat worthwhile

okay or unsure

somewhat a waste of time

not worthwhile; a real waste of time

## 5. Planning one week of school menus

- very worthwhile; really worth my time
- somewhat worthwhile
- okay or unsure
- somewhat a waste of time
- not worthwhile; a real waste of time

## 6. Sampling of new foods

- very worthwhile; really worth my time
- somewhat worthwhile
- okay or unsure
- somewhat a waste of time
- not worthwhile; a real waste of time

## 7. Discussion of equipment for the cafeteria

- very worthwhile; really worth my time
- somewhat worthwhile
- okay or unsure
- somewhat a waste of time
- not worthwhile; a real waste of time

## 8. Bulletin boards for the cafeteria

- very worthwhile; really worth my time
- somewhat worthwhile
- okay or unsure
- somewhat a waste of time
- not worthwhile; a real waste of time

## 9. Selection of china

- very worthwhile; really worth my time
- somewhat worthwhile
- okay or unsure
- somewhat a waste of time
- not worthwhile; a real waste of time

- B. Which of the following activities would you suggest repeating? Please check the one that best describes your feelings.
- |   |   |
|---|---|
| 1. Type A requirements                          | 6. Sampling of foods                        |
| <input type="checkbox"/> definitely yes         | <input type="checkbox"/> definitely yes     |
| <input type="checkbox"/> yes, probably          | <input type="checkbox"/> yes, probably      |
| <input type="checkbox"/> definitely no          | <input type="checkbox"/> definitely no      |
| 2. Decorating the cafeteria for the holidays    | 7. Equipment discussion                     |
| <input type="checkbox"/> definitely yes         | <input type="checkbox"/> definitely yes     |
| <input type="checkbox"/> yes, probably          | <input type="checkbox"/> yes, probably      |
| <input type="checkbox"/> definitely no          | <input type="checkbox"/> definitely no      |
| 3. Display of posters and informative materials | 8. Bulletin boards                          |
| <input type="checkbox"/> definitely yes         | <input type="checkbox"/> definitely yes     |
| <input type="checkbox"/> yes, probably          | <input type="checkbox"/> yes, probably      |
| <input type="checkbox"/> definitely no          | <input type="checkbox"/> definitely no      |
| 4. Tour of the kitchen                          | 9. Selection of new items for the cafeteria |
| <input type="checkbox"/> definitely yes         | <input type="checkbox"/> definitely yes     |
| <input type="checkbox"/> yes, probably          | <input type="checkbox"/> yes, probably      |
| <input type="checkbox"/> definitely no          | <input type="checkbox"/> definitely no      |
| 5. Planning one week of school menus            |   |
| <input type="checkbox"/> definitely yes         |   |
| <input type="checkbox"/> yes, probably          |   |
| <input type="checkbox"/> definitely no          |   |

C. Below are listed some additional activities. Indicate your interest in each activity by checking the appropriate one.

1. Tour of the central kitchen

very interested

somewhat interested

not interested

2. Attend a food show

very interested

somewhat interested

not interested

3. Participate in a monthly buzz session (discussing new regulations, wants, needs, etc.)

very interested

somewhat interested

not interested

4. Plan menu for your school

very interested

somewhat interested

not interested

APPENDIX B  
Attitude Study Instrument



"YOU ARE WHAT YOU EAT"

---

KANSAS CITY, KANSAS BOARD OF EDUCATION  
FOOD SERVICE DEPARTMENT  
2112 NORTH 18th STREET  
KANSAS CITY, KANSAS

SCHOOL FOOD SERVICE STUDY



HOW DO YOU RATE YOUR SCHOOL LUNCH?

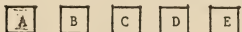
DIRECTIONS: Write your name on the answer card.  
Read each question carefully and fill  
in the correct answer on the computer  
answer card as directed.

PLEASE DO NOT MARK ON THIS BOOKLET!

EXAMPLE #1: Do your parents encourage you to eat the  
school lunch?

  A   Yes

  B   No

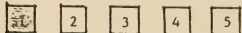


This person marked (A) because his  
parents encourage him to eat the school  
lunch.

EXAMPLE #2: Do your teachers encourage you to eat  
the school lunch?

  1   Yes

  2   No



This person marked (1) because his  
teachers encourage him to eat the school  
lunch.

Notice on the computer answer card that  
even numbered answers (2,4,6) are designated  
by letters (A,B,C) while odd numbered  
answers (1,3,5) are designated by numbers  
(1,2,3).

1. Student Classification
  - 1 Seventh; Sophmore
  - 2 Eighth; Junior
  - 3 Ninth; Senior
2. Sex
  - A Male
  - B Female
3. How many semesters have you attended this school?
  - 1 0-1 semesters
  - 2 2-3 semesters
  - 3 4-5 semesters
4. Do your parents encourage you to eat school lunch?
  - A Yes
  - B No
5. Do your teachers encourage you to eat school lunch?
  - 1 Yes
  - 2 No
6. From what source do you get the foods eaten for lunch?
  - A School lunch
  - B Snack bar
  - C A la carte
  - D Sack lunch from home
7. How far ahead do you know what is being served at school?
  - 1 The day before lunch
  - 2 The morning before lunch
  - 3 When I get in the lunch line
8. How are you informed about the school lunch menus?
  - A Daily announcements
  - B Read the menu board
  - C Posted in classrooms
  - D Read the menus in the newspaper

9. During the school week, how often do you usually eat the "Type A" lunch?

1 every day  
2 3-4 times a week  
3 1 or 2 times a week  
4 rarely or never

If you answered (1) or (2) in question #9, answer question #10.

If you answered (3) or (4) in question #9, answer question #11.

10. If you eat the school lunch 3 or more times a week, check as many of the following as you feel are correct for you.

A I like the food that is served.  
B My friends eat the school lunch.  
C My parents want me to eat the school lunch.  
D The price of the school lunch is low.

11. If you eat the school lunch 2 or less times per week, check as many of the following as you feel are correct for you.

1 I don't like the food that is served at the school.  
2 My friends and I bring sack lunches.  
3 It is cheaper to bring a sack lunch.  
4 I'm allergic to some foods.  
5 I purchase my lunch from the snack bar.

Please rate the school lunch program in your school by marking the one answer to each question that best describes your feelings.

12. What word best expresses your opinion of the school lunch program.

A Good  
B Fair  
C Poor

13. The school lunch room is noisy.

1 most of the time  
2 some of the time  
3 noise doesn't bother me

14. The lunch room is clean.
- A most of the time
  - B some of the time
  - C I don't really notice
15. The size of the servings is about right.
- 1 most of the time
  - 2 some of the time
  - 3 servings are too large
  - 4 servings are too small
16. The hot foods (meats, vegetables, etc.) in the school lunch are:
- A usually hot temperature
  - B usually lukewarm
  - C often cold
17. The cold foods (salads, milk, etc.) are:
- 1 usually cold
  - 2 sometimes cold, sometimes not
  - 3 often room temperature
18. The servers are:
- A usually friendly
  - B rarely friendly
  - C often crabby
19. The cashiers in the school lunch program are:
- 1 usually friendly
  - 2 friendly sometimes
  - 3 often crabby
20. The dining room atmosphere and furnishings are:
- A cheerful & bright
  - B okay, so-so
  - C drab and dull
21. We are rushed during lunch time.
- 1 most of the time
  - 2 some of the time
  - 3 not very often

22. When I eat the school lunch,
- A I usually eat most of my food.
- B I usually eat about half of my food.
- C I usually leave a lot of my food.
23. The lunch line moves
- 1 about right
- 2 too slow
- 3 too fast
24. Supervision in the lunch room is:
- A too lenient
- B too strict
- C about right
25. We are interested in knowing if you would like more choice within the "Type A" lunch. Please mark any answers that you feel are correct for you.
- 1 choice of two main dishes
- 2 choice of vegetables
- 3 variety of salads
- 4 variety of desserts
- 5 condiment bar for hamburgers
- Would you be interested in becoming involved in your school foodservice? Please mark the one answer to each question that would best describe your feelings.
26. Plan a menu to be served at my school.
- A would be very interested
- B might like to do that
- C not very interested
27. Serve on a student advisory council for school lunch.
- 1 would be very interested
- 2 might like to do that
- 3 not very interested

28. Provide art work for the dining room.
- A would be very interested
- B might like to do that
- C not very interested
29. Work on publicity for the foodservice in my school.
- 1 would be very interested
- 2 might like to do that
- 3 not very interested
30. Take a tour of my school foodservice facility.
- A would be very interested
- B might like to do that
- C not very interested
31. Provide entertainment during a meal or meals.
- 1 would be very interested
- 2 might like to do that
- 3 not very interested

## APPENDIX C

## Introduction Letter to Teachers



"YOU ARE WHAT YOU EAT"

UNIFIED SCHOOL DISTRICT #500  
FOOD SERVICE DEPARTMENT

Rosemary Gammon  
Food Service Director 342-3555

2112 North 18th Street  
Kansas City, Kansas 66104

September 20, 1976

**TO:** Teachers of classes participating in the school food service study

**FROM:** Sharon K. Evans  
Food Service Supervisor

The booklets found in your mailbox this morning contain a food service survey being administered in several Kansas City, Kansas schools. We ask that this questionnaire be administered with the professional attitude of any district-wide test.

Please distribute the survey booklets and computer cards to all students present in your \_\_\_\_\_ class today. Students should write the school number \_\_\_\_\_ in spaces 1, 2 and 3 under optional.

Upon completion, please return the booklets and cards to the school office.

Thank you for your cooperation.



APPENDIX D  
Attendance and Participation Form

SCHOOL \_\_\_\_\_

WEEK OF \_\_\_\_\_

	<u>ATTENDANCE</u>	<u>PARTICIPATION</u>
MONDAY	_____	_____
TUESDAY	_____	_____
WEDNESDAY	_____	_____
THURSDAY	_____	_____
FRIDAY	_____	_____

APPENDIX E  
Scoring of Attitude Instrument

## Scoring of Attitude Instrument

Item  
ScoreItem  
Score

13. The school lunch room is noisy.
- 1 \_\_\_ most of the time  
2 \_\_\_ some of the time  
3 \_\_\_ the noise doesn't bother me

14. The lunch room is clean.
- 3 \_\_\_ most of the time  
2 \_\_\_ some of the time  
1 \_\_\_ I don't really notice

15. The size of the servings is about right.
- 3 \_\_\_ most of the time  
2 \_\_\_ some of the time  
1 \_\_\_ servings are too large  
1 \_\_\_ servings are too small

16. The hot foods (meats, vegetables, etc.) in the school lunch are:
- 3 \_\_\_ usually hot temperature  
2 \_\_\_ usually lukewarm  
1 \_\_\_ often cold

17. The cold foods (salads, milk, etc.) are:
- 3 \_\_\_ usually cold  
2 \_\_\_ sometimes cold,  
sometimes not  
1 \_\_\_ often room temperature

18. The servers are:
- 3 \_\_\_ usually friendly  
2 \_\_\_ rarely friendly  
1 \_\_\_ often crabby

19. The cashiers in the school lunch program are:
- 3 \_\_\_ usually friendly  
2 \_\_\_ friendly sometimes  
1 \_\_\_ often crabby

20. The dining room atmosphere and furnishings are:
- 3 \_\_\_ cheerful and bright  
2 \_\_\_ okay, so-so  
1 \_\_\_ drab and dull

21. We are rushed during lunch time.
- 1 \_\_\_ most of the time  
2 \_\_\_ some of the time  
3 \_\_\_ not very often

22. When I eat the school lunch,
- 3 \_\_\_ I usually eat most of my food  
2 \_\_\_ I usually eat about half of my food  
1 \_\_\_ I usually leave a lot of my food

23. The lunch line moves
- 2 \_\_\_ about right  
1 \_\_\_ too slow  
1 \_\_\_ too fast

24. Supervision in the lunch room is:
- 1 \_\_\_ too lenient  
1 \_\_\_ too strict  
2 \_\_\_ about right

26. Plan a menu to be served at my school,
- 3 \_\_\_ would be very interested  
2 \_\_\_ might like to do that  
1 \_\_\_ not very interested

Item  
Score

27. Serve on a student advisory council for school lunch.
- 3     \_\_\_ would be very  
      \_\_\_ interested
- 2     \_\_\_ might like to do that
- 1     \_\_\_ not very interested
28. Provide art work for the dining room.
- 3     \_\_\_ would be very  
      \_\_\_ interested
- 2     \_\_\_ might like to do that
- 1     \_\_\_ not very interested
29. Work on publicity for the foodservice in my school.
- 3     \_\_\_ would be very  
      \_\_\_ interested
- 2     \_\_\_ might like to do that
- 1     \_\_\_ not very interested
30. Take a tour of my school foodservice facility.
- 3     \_\_\_ would be very  
      \_\_\_ interested
- 2     \_\_\_ might like to do that
- 1     \_\_\_ not very interested
31. Provide entertainment during a meal or meals.
- 3     \_\_\_ would be very  
      \_\_\_ interested
- 2     \_\_\_ might like to do that
- 1     \_\_\_ not very interested

## Computation of Scores

Food Score

The food score is the sum of scores for items 15-17, 22  
(Maximum score = 12)

Nonfood Score

The nonfood score is the sum of scores for items 13, 14, 18-21, 23, 24  
(Maximum score = 22)

Student Involvement Score

The student involvement score is the sum of scores for items 26-31  
(Maximum score = 18)

## APPENDIX F

Supplemental Tables (Tables 26-29)

Table 26: Percentage responses to food-related attitude items

item	Arrowhead Jr. <sup>1</sup>		Central Jr. <sup>2</sup>		Washington Sr. <sup>1</sup>		Schlagle Sr. <sup>2</sup>	
	pre <sup>3</sup>	post <sup>4</sup>	pre	post	pre	post	pre	post
	%	%	%	%	%	%	%	%
15. The size of the servings is about right	16.4	9.2	31.4	27.4	19.9	22.8	17.3	17.7
	25.8	26.1	30.0	30.4	27.1	32.7	35.2	34.7
	0.9	2.1	0.7	0.4	1.0	1.6	2.6	1.7
	55.9	62.2	36.8	40.7	51.4	42.7	45.0	44.8
16. The hot foods (meats, vegetables, etc.) in the school lunch are:	18.0	14.5	26.8	20.2	25.6	24.7	12.0	14.6
	55.0	51.0	56.4	58.4	60.4	59.8	61.0	59.6
	27.0	33.6	15.7	21.0	13.4	15.1	25.8	23.3

<sup>1</sup>Control schools

Arrowhead Jr. N varies from 210 to 213 on pretest; 237 to 241 on posttest.  
Washington Sr. N varies from 500 to 502 on pretest; 443 to 447 on posttest.

<sup>2</sup>Experimental schools

Central Jr. N varies from 277 to 280 on pretest; 261 to 263 on posttest.  
Schlagle Jr. N varies from 341 to 349 on pretest, 274 to 288 on posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.



Table 26: (cont.)

item	Arrowhead Jr.		Central Jr.		Washington Sr.		Schlagle Sr.	
	pre	post	pre	post	pre	post	pre	post
	%	%	%	%	%	%	%	%
17. The cold foods (salads, milk, etc.) are:								
usually cold	44.5	32.8	46.6	34.5	35.4	35.4	33.0	31.6
sometimes cold, sometimes not	30.3	31.5	31.2	34.9	34.6	36.8	36.8	36.8
often room temperature	24.2	35.3	22.2	29.9	29.8	27.1	30.2	29.5
22. When I eat the school lunch,								
I usually eat most of my food	67.1	50.2	45.9	44.7	69.5	69.8	50.7	52.2
I usually eat about half of my food	27.1	39.7	44.4	41.6	25.1	23.0	39.6	35.0
I usually leave a lot of my food	5.7	9.7	9.7	13.7	5.0	7.0	9.1	9.5

Table 27: Percentage responses to nonfood-related attitude items

item	Arrowhead Jr. <sup>1</sup>		Central Jr. <sup>2</sup>		Washington Sr. <sup>1</sup>		Schlagle Sr. <sup>2</sup>	
	pre <sup>3</sup>	post <sup>4</sup>	pre	post	pre	post	pre	post
	%	%	%	%	%	%	%	%
13. The school lunch room is noisy most of the time some of the time noise doesn't bother me	19.0	27.8	13.4	13.7	11.3	14.8	10.9	19.9
	12.9	10.0	17.9	17.5	10.3	17.0	12.3	17.8
	67.6	60.6	68.7	66.9	78.0	67.9	76.9	61.3
14. The lunch room is clean most of the time some of the time I don't really notice	44.5	37.0	36.3	27.8	44.7	45.2	45.3	46.3
	21.3	25.2	27.0	41.4	27.3	30.6	23.5	27.2
	32.7	35.3	35.6	30.1	26.9	23.3	29.2	24.0
18. The servers are: usually friendly rarely friendly often crabby	55.0	49.6	56.4	49.2	76.1	75.5	48.3	50.2
	19.9	20.8	22.7	25.2	16.1	16.8	28.5	22.6
	25.1	29.6	20.6	24.8	7.2	7.3	23.0	25.8

<sup>1</sup>Control schools

Arrowhead Jr. N varies from 209 to 213 on pretest; 235 to 241 on posttest.  
Washington Sr. N varies from 496 to 506 on pretest; 436 to 447 on posttest.

<sup>2</sup>Experimental schools

Central Jr. N varies from 281 to 286 on pretest; 261 to 266 on posttest.  
Schlagle Sr. N varies from 341 to 350 on pretest; 275 to 287 on posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

Table 27: (cont.)

item	Arrowhead Jr.		Central Jr.		Washington Sr.		Schlagle Sr.	
	pre	post	pre	post	pre	post	pre	post
	%	%	%	%	%	%	%	%
19. The cashiers in the school lunch program are: usually friendly friendly sometimes often crabby	55.5 31.1 12.0	48.5 31.4 18.8	42.7 37.1 19.9	41.6 32.4 25.6	65.5 26.7 7.0	70.2 23.3 6.5	56.5 30.7 11.9	51.2 26.0 21.7
20. The dining room atmosphere and furnishings are: cheerful and bright okay, so-so drab and dull	13.6 68.5 17.8	10.1 62.9 27.0	13.8 70.0 16.3	6.8 71.5 21.7	12.5 70.2 16.9	12.2 67.3 20.5	11.0 72.0 16.5	10.5 65.3 22.7
21. We are rushed during lunch time most of the time some of the time not very often	46.0 30.0 23.9	44.8 30.1 24.3	44.0 31.9 23.8	43.7 27.6 28.7	64.0 19.4 16.4	57.5 28.5 13.3	39.8 36.1 23.2	38.1 31.3 29.1
23. The lunch line moves about right too slow too fast	40.8 57.3 1.9	36.2 61.7 1.3	27.0 70.0 2.5	25.2 74.0 0.8	55.9 42.5 1.6	56.8 40.4 2.5	19.0 80.1 0.6	38.9 57.8 3.3
24. Supervision in the lunch room is too lenient too strict about right	4.7 32.2 62.1	5.5 44.3 48.9	3.5 28.7 66.7	5.7 30.5 62.2	3.2 15.9 79.8	4.6 14.7 79.8	6.7 36.4 55.7	8.0 54.0 36.2

Table 28: Percentage responses to items related to interest in involvement in the school foodservice program

item	Arrowhead Jr. <sup>1</sup>		Central Jr. <sup>2</sup>		Washington Sr. <sup>1</sup>		Schlagle Sr. <sup>2</sup>	
	pre <sup>3</sup>	post <sup>4</sup>	pre	post	pre	post	pre	post
	%	%	%	%	%	%	%	%
26. Plan a menu to be served at my school	30.3	28.4	37.7	40.8	15.4	14.3	16.7	15.4
would be very interested	41.7	38.6	36.2	33.7	35.2	26.6	35.8	29.0
might like to do that	28.0	33.1	25.0	25.1	48.6	58.3	47.0	55.5
not very interested								
27. Serve on a student advisory council for school lunch	18.7	22.1	31.7	28.8	15.5	12.4	20.2	15.8
would be very interested	44.5	38.7	33.8	38.9	38.3	25.2	31.6	29.8
might like to do that	36.8	38.7	33.8	31.5	46.0	62.2	47.6	54.3
not very interested								

<sup>1</sup>Control schools

Arrowhead Jr. N varies from 209 to 213 on pretest; 225 to 236 on posttest.  
Washington Sr. N varies from 480 to 495 on pretest; 417 to 430 on posttest.

<sup>2</sup>Experimental schools

Central Jr. N varies from 275 to 285 on pretest; 253 to 257 on posttest.  
Schlagle Sr. N varies from 325 to 332 on pretest; 254 to 272 on posttest.

<sup>3</sup>Pre = pretest; administered at the beginning of the school year.

<sup>4</sup>Post = posttest; administered at the end of the study period.

Table 28: (cont.)

item	Arrowhead Jr.		Central Jr.		Washington Sr.		Schlagle Sr.	
	pre	post	pre	post	pre	post	pre	post
	%	%	%	%	%	%	%	%
28. Provide art work for the dining room would be very interested might like to do that not very interested	28.7	21.6	22.2	22.7	13.4	11.9	10.9	14.2
	26.8	25.5	32.0	27.8	25.7	20.9	26.9	16.5
	43.1	51.9	43.7	48.6	60.5	66.5	62.2	67.4
29. Work on publicity for the foodservice in my school would be very interested might like to do that not very interested	17.1	11.8	21.3	14.9	12.2	7.9	7.6	6.9
	33.8	28.8	34.8	36.9	21.6	14.9	23.0	22.0
	48.1	59.4	43.6	47.1	65.8	76.7	68.8	69.5
30. Take a tour of my school foodservice facility would be very interested might like to do that not very interested	27.2	28.9	36.1	36.1	22.6	17.4	20.4	22.0
	33.3	30.6	35.8	33.3	31.3	25.2	32.6	24.2
	38.5	39.7	27.4	30.2	46.1	57.2	46.0	52.7
31. Provide entertainment during a meal or meals would be very interested might like to do that not very interested	43.4	40.0	38.2	31.2	25.4	20.1	29.8	23.2
	25.9	23.1	22.9	22.1	23.3	18.2	22.5	18.1
	30.2	36.0	37.8	46.2	50.8	61.2	47.4	57.1

Table 29: 1976-77 average daily percentage participation<sup>1</sup> by school

month	Arrowhead Jr. <sup>2</sup>		Central Jr. <sup>3</sup>		Washington Sr. <sup>2</sup>		Schlagle Sr. <sup>3</sup>	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
	%		%		%		%	
September	66.4	± 7.4	80.6	± 3.2	59.9	± 5.7	66.1	± 5.2
October	68.6	± 7.4	77.0	± 3.9	60.2	± 5.1	64.9	± 3.5
November	66.0	± 8.0	77.3	± 5.4	59.7	± 5.6	59.5	± 5.7
December	66.3	± 6.0	74.9	± 3.2	58.2	± 4.7	57.7	± 3.5
January	66.3	± 8.7	74.8	± 5.9	54.9	± 13.7	56.5	± 3.7
February	64.5	± 9.7	74.5	± 4.3	55.0	± 4.1	52.0	± 4.0
March	66.7	± 6.2	76.2	± 3.7	57.3	± 3.7	52.3	± 4.1

<sup>1</sup>Daily attendance was determined by subtracting absences from enrollment. Percentage participation was computed by dividing the numbers of students participating in the Type A program by the number of students in attendance daily.

<sup>2</sup>Control schools.

<sup>3</sup>Experimental schools.

EVALUATION OF THE STUDENT ADVISORY COUNCILS  
FOR SCHOOL FOODSERVICE PROGRAMS

by

SHARON K. EVANS

B.S., Kansas State University, 1964

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AN ABSTRACT OF A MASTER'S THESIS

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## ABSTRACT

Involving students in the school foodservice program has been an approach used to increase participation in the Type A lunch program and to stimulate student feedback. The objective of this project was to study the influence of involving secondary students in the school foodservice program on student participation in the Type A lunch program and attitudes of the students toward school foodservice.

Four secondary schools (two junior and two senior highs) in Kansas City, Kansas were the sites for the study. Two schools served as controls for comparison purposes. The other two were designated as experimental schools. Implementation of student advisory councils in the experimental schools was the approach used for involving students in the program.

A foodservice attitude instrument was administered to approximately one-third of the students at each of the four project schools at the beginning of the academic year and at the end of the study period, approximately 125 school days later. Participation data were compiled daily during the study period at all four schools. Participation data for a similar period a year earlier also were compiled for comparative purposes.

Following the study period, members of the student advisory councils at the two experimental schools evaluated: (a) the food service involvement activities, (b) activities to repeat, and (c) interest in additional foodservice activities. The ratings reflected a high level of interest among council members at both schools.

Differences were found in attitude scores among findings from the four project schools on both the pre- and posttests. Overall the pattern of scores did not indicate an impact from the council activities.



Mean interest in involvement scores on the attitude survey showed that junior high school students' scores were significantly higher than the senior high school students on both the pretest and posttest. Scores were higher on both the pretest and posttest at the two experimental schools; therefore, it was difficult to assess the actual impact of the advisory councils.

Participation data reflected increases during the school year in which the study was conducted, compared to the prior year. Examination of data did not show a trend related to the initiation of the councils.

Overall assessments of responses of the total student body to the implementation of student foodservice advisory councils did not reflect measurable positive changes. Data from the project revealed a more positive student attitude toward school foodservice at the junior high level than at the senior high. The impact of the council activities at the junior high level may have been greater if members had been selected to represent all grade levels (7-9) within the school. Also, repeated and follow-up activities would be more easily implemented if council membership permitted some continuity from year to year.

Assessment of the effectiveness of student advisory councils over a longer period of time might show a more definitive impact. Perhaps the period of time encompassed by the study was too limited to measure the effects of such a project. Other measures may be needed for a complete evaluation, such as amount of plate waste, student knowledge of the program, or changes in students' eating habits. Also, even though a small group of students was directly affected, the positive reactions of these students can certainly be seen as a meaningful outcome.

