ACTUAL AND INTENDED ENTREE SELECTION OF COLLEGE WOMEN
FROM RESIDENCE HALL MENUS

by

CHERYL J. WILEY

B.S., Kansas State University, 1973

———————————

A MASTER'S REPORT

submitted in partial fulfillment of the
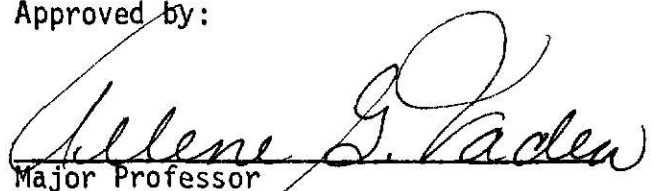
requirements for the degree

MASTER OF SCIENCE

Department of Dietetics, Restaurant,
and Institutional Management

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1979

Approved by:

Major Professor

ACKNOWLEDGMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Cost control has become an important aspect in managing a foodservice operation, especially with the rise in food costs in recent years. Accurate forecasting is essential in determining food production amounts to avoid overproduction and waste. Forecasting deals with the consumer demand of food items. A number of college foodservices have utilized food preference studies to forecast food production better (1-13).

Trends in foodservice indicate that colleges and universities are placing greater emphasis on catering to the needs and demands of the students now than previously (14). For example, special dinners are a part of the fanfare of college foodservice (15-22). Other divisions have prepared vegetarian meals and served yogurt for the residents (1, 18, 23-27).

Food preference scores measure the degree of food acceptance and have been used to study food consumption (28). Selective menus have been devised to cater to students' needs but have created a problem in determining the amount of each item to prepare or buy without overproduction (29). Every residence hall student does not eat all meals, making food prediction a more difficult task (10).

The overall objective of this study was to compare students' intended entree selections from residence hall foodservice menus with actual choices from the serving line. Specific objectives included:

    (a) studying preferences for entree items;

    (b) studying intended selections between pairs of entree items and alternate items and degree of certainty about each decision;

(c) comparing actual choices with intended choices; and

(d) assessing usefulness of students' intended entree selections as a production demand forecasting tool.

The site of this study was a freshmen and sophomore women's residence hall dining facility at a large university in Kansas. Two halls are serviced by one cafeteria. Approximately 737 women live in these two residence halls.

This study was an extension of the research of forecasting production demand by Shriwise (10), college students' entree choices by Johnson and Vaden (5), and high school students' stated entree decisions by Gargano and Vaden (30). The method for studying preferences and intended selections was adapted from Johnson's and Gargano's research. These two studies considered only the two planned menu choices and did not consider other selections. In this research, data on selection and preference of alternates to the two planned entree choices were included:

Literature reviewed included: college foodservice, menu planning, food preferences and habits, forecasting, and attitudes related to consumer behavior.

REVIEW OF LITERATURE

College Foodservice

Foodservice Development

Hostels were one of the first types of living arrangements for those university students of medieval times. Clergymen managed the student living quarters, room and board, during colonial times. Since World War II cafeteria style or self-service styles have replaced family or formal seated service. Coeducational housing facilities have replaced some of the segregated facilities. Other foodservice systems are centralized allowing for more efficient use of manpower and equipment. Trends show college foodservice catering more to the needs and requests of the student. For example, meal hours are longer, menu variety is provided, and self-service salad bars, soup counters, and buffet meals are provided (14).

Goals of College Foodservice

Many college foodservice establishments have common goals. In general, the goals of college foodservice are to serve quality food which is appetizing and nutritious, to promote the well-being of students, and to provide variety in food and in service. In the following discussion, a number of examples are given.

The goal at Andrews University and at Davidson College is to provide a more flexible system than a contract system with an a la carte system (31, 32). At Newcomb College, goals include serving well-balanced meals while using variety in foods (33). In addition, the Virginia Commonwealth

University intends to serve quality food that is appetizing and attractive (34). Main objectives of the foodservice director at the University of Pacific are translated through a three-part program (a) to improve foodservice relations with students, (b) to merchandise foodservice, and (c) to formulate student-preference menus (11).

Iowa University foodservice strives to make eating enjoyable (9). Brigham Young University promotes service of variety with nutritious and attractive meals and boosters student welfare and health (35). The foodservice division at Princeton University has established goals for diversity, interest, and satisfaction in foodservice related to quality, quantity, atmosphere, and variety (36); whereas Yale University promotes nutritious meals and varied experiences (37).

Oldest College Foodservice in the United States

The foodservice division at Harvard University has been in existence since 1636. Foodservice started with butler-served meal styles (37). Yale foodservice began in 1718. In the 1930's a residential college plan was installed; today students still must reside and eat on campus. The formal dining with linen, china, silverware, and waiters (waitresses) changed to cafeteria style using metal mess trays during World War II. Formal dining reappeared in the early 1950's. In the 1960's menu choices became a part of the foodservice style. Today a twenty-one meal plan is provided. Over the whole university eleven different menus appear (18). Yogurt (18) and international dishes are regular menu items (19). Festive meals are served including "Hawaiian night," "Italian night," "French Provincial night," and "Oriental night," featuring exotic dishes such as quiche or chicken wings Cantonese (19).

Foodservice Innovations at Other Universities

An outside contractor, ARA, manages the foodservice at St. Joseph's College in Philadelphia. Twenty-eight people, members of the food committee, help solve problems in service and menu planning. A serve-yourself beverage island suggested by the committee improved the flow of people traffic (38).

At Andrews University a study by Chilson and Knickrehm (31) revealed that students preferred the a la carte system, 68.1 per cent for men and 83 per cent for women, compared to a contract system. The a la carte system provided more flexibility in selection and variety of entrees and desserts. Fewer people ate dinner at the hall with the a la carte system. Men missed 36.8 per cent of the meals while women missed 44 per cent.

Davidson College (32) has three dining room facilities each featuring different service styles. The facilities are housed in three old fraternity houses providing an atypical foodservice building style. The service features standard cafeteria and snack bar, delicatessen and grill combination, and buffet styles. Meal coupon books, which can be used at any hall, or cash may be used. Student participation has increased to thirteen and fourteen meals a week.

At Bowling Green State University coupons are used to purchase meals. Meal hours have been doubled and are flexible. Coupons are accepted in the snack bar, for steaks to grill outdoors, and for birthday cakes. Waste has decreased by 60 per cent (39).

York College of Pennsylvania utilizes family style service with hostesses (hosts). Unlimited seconds can be obtained. Special dinners are provided occasionally (17).

At some universities fast-food chains have become a part of the food-service. Popular foods served are hamburgers and french fries. Some universities offer ten-meal plans; others, twenty-one meal plans. Managers have revamped menus and facilities to provide for the needs of the students. At Smith College and at Mount Holyoke a student may eat a vegetarian meal. Yale University has a cafeteria featuring 'organic foods.' Oregon State University has five specialty food shops; San Diego has a Country Store. South Dakota State University uses a seven-day meal plan, while the University of Kentucky uses a coupon system with three different meal plans (twenty meal, fourteen breakfast and dinner, and eat anywhere) (25).

Services rendered at Newcomb College include preparing extras such as box lunches every day and for the Mardi Gras, survival kits, and coffee every day. The Sunday dinner meal is a seated meal with waitresses. Each resident may invite a faculty member to lunch once a month. Noncyclical menus are used. Sunday suppers include such food items as chili and barbequed beef on a bun (33).

Two styles of service facilitate life styles of residents at the University of the Pacific; these are sitdown service (extra charge) and self-bussing. Menu planning has been improved by utilizing food surveys, food committees, and the maitre d' hotel approach (11). Unlimited seconds are allowed. Homemade soup and a salad bar appear every day. Residents can also eat at the union. Peanut butter is always available (40).

Grinnell College features an extensive vegetarian program for the 7.5 per cent of the population who are vegetarians. An additional 20 per cent eat the vegetarian meals. Students have helped design the program and evaluate menu items (1).

Coeducational dining exists at Virginia Commonwealth University. A cafeteria style-service allows seconds but no carry-outs except fresh fruit (34).

A scramble system with several lines exists at the University of Tennessee. Seconds are allowed. Extras include special dinners, salad bars, salad plates, low-calorie menus, lunch deli, and snacks late at night. Two basic meal plans are five-day (fifteen meals) or seven-day (21).

Vegetarian meals exist at Iowa University. Three basic plans are full board, partial board (lunch and dinner), and partial board (breakfast and dinner) (24).

At Brigham University and at the University of Pennsylvania the food-service division operates all of the campus dining facilities (35, 41). Board plans at the University of Pennsylvania include twenty-one meals a week (41).

Board plans at the University of the Pacific include five, ten, fourteen-fifteen, and twenty-one meal plans. Students may purchase an extra "Scrip Book" for use anywhere on campus. Menus run a five-week cycle. A health food and vegetarian program has been set up. Cheese and yogurt are available. A vegetarian dish is served at every dinner (23).

The first a la carte system was established at Oklahoma State University. The system has zero, ten, and fifteen-meal plan options (42).

At Princeton University one dining hall has been designated the vegetarian hall. The cafeteria line is self-service for the main entree which features one egg dish and/or poultry, fish, or meat alternative. A vegetable dish and brown rice are offered both at lunch and dinner every

day. Yogurt is available as a salad (27). No casseroles, except spaghetti and sauce, are used (36).

A "Quick Way lunch program" was installed at State University of New York in 1974-75. Results indicate 70 per cent of the students eat the "Quick Way" and 30 per cent eat the hot entree. Unlimited seconds are available on all items except sirloin steak and prime ribs of beef. Meal plans are purchased for fifteen or nineteen meals. Special meals served include steak dinner and a Carnival Weekend midnight brunch (16). The residence hall foodservice at Purdue University hosts formal dinners, such as dance, and offers food featuring gourmet items, ethnic dinners, buffets, picnics, faculty dinners, and annual guest luncheons (21).

Left-over entrees appear with the vegetables and soups on a self-service unit at the University of South Dakota (43). The University of Rochester features special dinners with exotic foods and entertainment. Menus rotate on a three-week cycle. A vegetarian menu also is provided (26).

Mandatory family-style dining at dinner for one year for all first year students contributes to their initiation to Dartmouth College (44). Freshmen purchase a seven-day meal contract while upperclassmen opt for a five or seven-day contract. Unlimited seconds except for steak are allowed. The manager watches the conveyor belt to determine menu item acceptability. Mary Baldwin College features family-style dining (45).

Every Tuesday night at the University of Michigan a special dinner is featured to increase student participation at Stockwell Cafeteria. Themes have included a Texas-style barbeque, Chinese, Japanese, Italian, German, Mardi Gras, Hawaiian Luau, and lobster with steak (15).

Soul foods have been included in the menus of several universities
(39). A Mexican Fiesta was held at Texas A & M University. A student
menu board is also featured (20).

Michigan State University residence hall foodservice has a scramble
system. Unlimited seconds may be obtained except on breakfast and entree
meats (46).

In 1968 Southwest Texas State College developed a continuous serving
schedule in one of four dining halls from 6:30 a.m. to 6:30 p.m., for
flexibility. Three dormitories have regular schedules. The service
features a scramble system with unlimited seconds. Dinner steaks are
offered twice a month. Stunts are presented during finals (47).

The lunch-dinner menu runs continuously at Ambassador College from
11:00 a.m. to 7:15 p.m. Two meat items are provided during this time
period (48).

Menu Planning

Factors Affecting Menu Planning

Factors involved in menu planning are consideration of the clientele,
markets, food budget, recipes, salesmanship or merchandising, and prepara-
tion in relation to employees, equipment, distribution, and service (49,
50). Customer considerations are racial habits, likes and dislikes, and
economic status (occupation) (49). Other factors include patron's age,
sex, and nutritional needs (49-51). Season, climate, holidays, and fast
days also affect menu planning (1, 49-50). Choices and variety should be
offered so patrons can eat a well-balanced meal (1, 49-50, 52).

Kotschevar (52) contended that menus should be planned for those eat-
ing the food. Food habits and preferences are affected by economic,

social, regional, ethnic, religious, and behavioral backgrounds. Food form, texture, flavor, color, and temperature all play a role as well (14, 50, 52). Computers can be used to plan the menu and set up restraints on cost, nutrients, item repetition, recipes, orders, and purchase requisitions (52).

Types of Menus

The three common types of menus include the selective menu, the nonselective menu, and the cycle menu (selective or nonselective) (29). The cycle menu usually covers a time period of from three to five weeks before being repeated (29). The advantages that have been cited for selective cycle menus are greater client satisfaction, savings in time and effort for planning the menu, ease in standardization of production, opportunity to improve recipes, greater cost control with efficient purchase records, and organization of personnel time and work (53).

Food Preferences

Studies Among College Students

Students at North Central College in Illinois reported their favorites as strawberry shortcake, ice cream, doughnuts, roast beef, beef steak, and hamburgers. Italian spaghetti and swiss steak also were popular. Clam chowder was unpopular, while chicken noodle was the most popular soup. Bacon-lettuce-tomato sandwiches rated a 92 per cent preference rating (54).

Einstein and Hornstein (55) conducted a large national study of college students, comparing food texture and flavor with food preferences and food nutrient composition to determine nutritionally significant foods

that remain disliked. The following ranked in the top 10 per cent of liked main entree items: beef steak, roast turkey, roast beef, fried chicken, and hamburger. Disliked items were chicken livers, navy bean soup, and lamb stew. Ten per cent of the participants categorized the following items into a "do not know" category: reuben sandwich, cheese blintzes, Welsh rarebit, lamb stew, veal fricassee, baked swordfish, beef barley soup, and Hungarian goulash. All foods were grouped as beverages, soups, vegetables, salads, appetizers, sandwiches, entrees, breads, and desserts. Sandwiches and entrees rated as the most liked and combinations (in general), less well liked. Vitamin C and calcium-rich foods were well liked while foods high in Vitamin A and iron were less well liked (55).

Menu item frequency acceptance has been studied at the University of Nebraska by Knickrehm et al. (6). A questionnaire distributed listed 126 menu items and five common dessert flavors. Students described how often they desired these foods as twice a day, twice a week, once a month, and not familiar with the food. No entrees were desired twice daily. Roast beef and steak were accepted twice a week by 45.9 per cent; hamburger, 40.3 per cent; bacon-tomato sandwich, 27.4 per cent; ham, 27.2 per cent; chili, 26.7 per cent; fried chicken, 25.1 per cent. Dinner entrees disliked included corned beef and cabbage, liver and onions, veal casserole, ham loaf, roast lamb, shrimp casserole, veal cutlet, and salmon. Luncheon entrees not popular were chicken giblets, salmon loaf, chow mein or chop suey, hash, meat and potato cake, fish salad sandwich, and meat and rice casserole. Lamb was unacceptable, too. Meat items unfamiliar to 8 per cent of the respondents were shrimp casserole, veal casserole, runza, meat and potato cake, submarine sandwich, and lasagna.

Food preferences and acceptance have been studied at North Texas State University. Aboul-ela (2) chose 100 food items from the menus of two universities. Roast beef and turkey with dressing were preferred by more than 74 per cent and were desired once a week by 53.1 per cent and 44.4 per cent, respectively. Entrees liked by 60 to 70 per cent of the students included shrimp, fried chicken, chicken fried steak, barbequed beef, ham, hamburgers, and barbequed chicken. Spaghetti and meat sauce, grilled cheese sandwich, baked chicken, and macaroni and cheese ranked in the 50 to 60 per cent desirability category. Lasagna, fried fish, meat loaf, sloppy joes, smothered steak, burritos, and sausage were liked by 40 to 50 per cent. In order of decreasing preference, entrees liked by less than 40 per cent of the respondents included beef stew, corn dogs, chili, swiss steak, beef stroganoff, frankfurters, ravioli, bologna, frito pie, roast lamb, turkey tetrazzini, liver, salmon loaf, and pork chow mein.

Brown (4) reported a study in which nutrition students at the University of Illinois wrote papers about their food habits from childhood to the present and about their food preferences. Factors affecting food habits and preferences were parental influence, geographical area, income, number in family, life pressures, eating situations away from home, living arrangements away from home, job hours, and ease of preparation and purchase of meals. Oysters were among the foods never liked. Beef, hamburgers, lobster, steak, and hot dogs were liked. Hot dogs also were disliked by some respondents.

Shriwise (10) studied food habits, opinions, and perceptions of the foodservice to predict meal attendance and to forecast amounts of food to prepare. Students ranked their favorite luncheon entrees as follows: 55.7 per cent liked sandwiches, 33.5 liked casseroles, and 10.8 per cent

liked cold plates. More females preferred cold plates while more males preferred casseroles. Females ranked items as follows: 53.3 per cent liked sandwiches, 29.0 per cent liked casseroles, and 17.8 per cent liked cold plates. The dinner entree item most frequently designated as favorite was beef: grilled steaks and roast beef (37.5 per cent). Italian and Mexican foods were the most favorite for 18.0 per cent. Other ratings were poultry-solid items (15.0 per cent), beef-other solid items (9.0 per cent), fish--fried (7.5 per cent), sandwiches, casseroles, cold plates (6.0 per cent), pork-solid items (5.0 per cent), and fish--baked (2.0 per cent). The least often designated favorite items were beef-other solid items (22.2 per cent), fish--baked (19.7 per cent), other (18.7 per cent), sandwiches, and casseroles (17.7 per cent).

In a food preference study by Johnson and Vaden (5), beef steak and/ or cutlets were liked. Cold and hot sandwiches also were well liked including bacon, lettuce, and tomato sandwiches, barbequed beef on bun, french dip sandwich, and hamburger sandwich. Casseroles most preferred included creole spaghetti, beef stew, and turkey and dumplings. Salad plates were least preferred. Shrimp rated 80.3 per cent in preference; chili, 78.2 per cent. Italian and Mexican foods also were favored.

Verzosa (12) studied the food preferences of college freshmen, men and women, at Fresno State College. Favorite foods included most of the desserts and beverages, ice cream, whole milk, orange juice, fresh fruit salad, corn on the cob, fried chicken, hot sandwiches, bacon and tomato sandwich, clam chowder, and chicken noodle soup. Food items least liked were vegetables and main courses. Unfamiliar food items for women included chicken croquettes, ham ala king, shrimp creole, beef kabob, lamb stew, chicken chop suey, chili beef soup, veal parmigiana, breaded

pork steak, deep fried cod, clam chowder, chicken ala king, and deep fried sole. Women had more food likes; men, more dislikes. Women ranked soups in the following manner: chicken noodle, vegetable, tomato, bean and bacon, minestrone, chili beef, clam chowder, cream of chicken, split pea. Meat items most liked by women included fried chicken, french dip beef, deep fried shrimp, hamburgers, hot beef sandwich, roast beef, bacon and tomato sandwich, roast turkey, baked ham, cheeseburgers, hot turkey sandwich, barbequed chicken, yogurt, hot dog, tacos, and beef steak.

Warren (13) determined food preferences of students at Langston University and the relationship with population variables: sex, place of residence, extent of travel, age, level of income, education of parents, college classification, and selection of Basic Four every day. Half of all items in the study were strongly disliked. Least liked food was liver. Vegetables were the biggest category of disliked foods. Meat, bread, milk, cereals, and ice cream were liked. The food preferences of males and females were similar. Rural students had fewer food dislikes. Sophomores had the most dislikes while freshmen had more dislikes than juniors and seniors.

Main dishes disliked by more than 25 per cent of the males questioned were liver, beef stew, stuffed green peppers, beef stroganoff, salmon croquettes, tuna noodle casserole, chicken pot pie, cold cuts, and tunafish croquettes. The men's favorites included chopped steak, roast pork, barbequed spare ribs, fish sticks, hamburger, barbequed beef, and hot roast beef sandwich. Entrees disliked by more than 25 per cent of the females were chitterlings, liver and onions, tunafish croquettes, beef stroganoff, stuffed green peppers, beef stew, salmon croquettes, chicken pot pie, tuna noodle casserole, creamed turkey, steak in tomato sauce, chicken and

noodle casserole, and fried catfish. The favorites of women included grilled ham and cheese, barbequed spare ribs, hamburgers, hot roast beef sandwich, fried chicken, and barbequed chicken (13).

The purpose of Barlow's (3) food preference study was to determine the relationship of home community size and student sex to food preferences of men and women at Kansas State University. Nineteen foods were liked better by females than males, especially cottage cheese, tuna, and chicken. Home community size was related to preference for crab, artichokes, and turkey. Seventy-nine per cent found beef, bacon, ham, turkey, chicken, and veal as favorites; fish, 80 per cent; 75 per cent, American cheese; 69 per cent, peanut butter. Liver was disliked by 53 per cent. Ten per cent of the respondents had eaten all of the food items; whereas 54 per cent of the items had never been tried by at least one student. Men were familiar with 56 food items compared to 44 for women.

In a food habit study by Spangler (56) at New Mexico State University, results indicated students ate breakfast if their mothers prepared it. Men drank more milk. Vitamin C-rich foods most liked were orange juice and tomatoes. High protein foods, fruits, and vegetables were desired. Favorite foods included milk, orange juice, toast, eggs, bacon, iced tea, steak, potatoes, corn, rolls, salads, and pie. Liver was least preferred.

Thompson (57) studied the food habits of college women. Cultural foods listed as liked by several people were German sausage, German coffeecake, spaghetti, pita bread, pilaf, pizza, and tacos. National foods liked were as follows: Mexican-Spanish, Chinese, Armenian, German, Japanese, Belgian, French, Ethiopian, Greek, Swiss, Syrian, and

Yugoslavian. Twenty-two per cent of the group met two-thirds of the recommended allowances for all of the nutrients.

A food preference survey at the University of the Pacific showed 36.6 per cent preferred hamburgers at lunch and 33.6 per cent desired roast beef for dinner (11). A menu item survey indicated hamburgers, hot beef sandwich, and roast beef were best liked at the Massachusetts Institute of Technology (7).

Schuck (9) conducted a study at South Dakota State College asking 120 students to check sixty-one foods as willing to eat often, willing to eat once a week, unwilling to eat, and have never tasted. From 90 to 100 per cent were willing to eat beef and fowl often; 80 to 90 per cent, pork and fresh fish; 70 to 80 per cent, canned fish and veal; 50 to 60 per cent, liver and lamb; 40 to 50 per cent, liver sausage; 30 to 40 per cent, heart; 20 to 30 per cent, tongue. Twenty to 30 per cent would eat heart and sausage once a week; 10 to 20 per cent, lamb, pork, liver, tongue, fresh fish, and canned fish. Eighty to 90 per cent were willing to eat cheese often. Urban students were more willing to eat a greater variety of foods more often than were rural students. Reasons for not liking many foods were based on taste, odor, appearance, unfamiliarity, physiological factors, psychological factors, and family attitudes and customs.

White (58) found that no main dish items were desired every other day or twice a week. Fried chicken, beef roast, chicken fried steak, cheeseburger, pot roast, hamburger, pizza, french fried shrimp, and baked ham all were accepted once a week. Those desired once a month included french fried cod, baked halibut, chili macaroni, braised beef, creamed chipped beef, reuben sandwich, stuffed peppers, beef chop suey, liver and onions, and Austrian ravioli.

Other Related Studies

Gargano and Vaden (30) used two methods, questionnaire and slide presentation, in studying choice selection, preference, and certainty in choice of menu items. In this high school study 252 randomly selected students participated in answering the questionnaire and 100 participated in the slide approach. Hamburgers, Italian dishes, Mexican dishes, and hot sandwiches were preferred over salad plates, casseroles and creamed dishes, and specific fish items. Sandwiches, fried fish entrees, and Italian and/or Mexican dishes were liked by 60 per cent while 30 per cent of the respondents disliked salad plates, specific casseroles, creamed, and extended main dishes. Ham, roast turkey, and macaroni and cheese were less well liked in the slide experiment than in the questionnaire one. Fish and chips and breaded pork cutlet were liked only in the slide approach. Ham salad, turkey salad, and egg salad were least liked in the slide approach. Pizza and fried shrimp were well liked. Vegetable soup was disliked by 30 per cent or more.

The United States Armed Forces has conducted preference studies to facilitate menu planning. Peryam et al. (59) reported that stated preferences are more reliable than actual food consumption and waste in mess hall in predicting food selections. Main emphasis was placed with serving frequency, optimal menu combinations, and data reliability and predictive value. Percentage consumption for meat, fish, and eggs was 83.6; 86.3 per cent for desserts and fruits; 73.5 per cent, vegetables. All foods ranked as follows from most to least preferred: breads, desserts, beverages, fruits, potatoes and starches, main dishes, cereals, salads, accessory foods, soups, and vegetables. Grilled steak, fried chicken, and roast turkey were highly rated. Meat categories were ranked as follows (from

most to least): fowl, other pork, hams, ground meats, veal, beef, cheese, frankfurters, cold cuts and sausages, lamb, meat combinations, liver, and fish.

Hoover (60) found that more Army personnel disliked spaghetti and meat balls, bread pudding, and iced coffee than did college men. More college men disliked buttered turnips and fresh tomatoes.

Peryam and Gutman (61) studied factors affecting preference variation in a field situation. These factors were mess-hall, meal, day of week, successive weeks, and questionnaire form. Orange juice was tested at every meal. Mess-hall and meal had significant effects on preference ratings.

Schutz (62) found that roast beef, fried chicken, hamburger steak, ham, and pork chops were well liked. Shrimp was well liked. Vegetable soup was the favorite soup. The favorite snack was pizza.

Pilgrim's research (28) among Army personnel indicated that some of the best liked foods included grilled steak, ice cream, French fries, hot biscuits, and milk while vegetables were least liked. Most meats were liked except lamb and fish (low preference items) and plain foods liked more than combinations. Age, origin, level of education, and town size had some effects on personal preference and preference for soups increased with age. Higher educated people disliked meat combinations, veal, wieners, and fish more than less educated people. Men tended to eat more filling foods. Menu combinations, frequency of serving, and satiety of foods influenced food preferences.

Measurement of Food Preference

Pilgrim (28) found food preference to be a predictor of food consumption. He defined preference as the degree of like or dislike for a food and an affective attitude.

Edwards (63) defined like as denoting a favorable or positive attitude and dislike denoting an unfavorable or negative attitude. He suggested utilizing direct questioning to determine an individual's feelings toward an object. With questions a person can be grouped into one of three groups: favorable attitudes possessed, unfavorable attitudes possessed, or undecided attitudes possessed. Undecided also is a "don't know" category.

Food acceptance has become an important determinate in planning menus. Schutz (62) used results from frequency-of-food acceptance surveys in planning menus. Many organizations have used surveys as an aid in menu planning (5, 6, 10, 13, 30, 62, 63). White (58) stated that such surveys are a means of communication between staff and clientele.

Pilgrim (64) defined food acceptance as pleasurable consumption. In a later paper (28) he contended that an important predictor of food consumption is food preference. Schutz (65) reported that 25 to 50 per cent of variation in food consumption can be accounted for by preference. Correlation of actual consumption, acceptance at the serving line, and mean preference ratings indicated 59 per cent of food selection behavior variance was attributable to preference ratings. Pilgrim (64) listed three components for predicting food acceptance: having a criterion, determining factors affecting behavior, and using proper techniques for measuring these factors. Factors affecting consumption are internal (physiological), sensation, and external (attitudinal).

Methods are categorized as attitudinal, sensory tests, and consumption. Preference surveys measure attitudes; whereas, food attitudes are defined as expressions of opinion or affective reactions that are usually obtained by questionnaire (28). Interviews are sometimes used to determine feelings and knowledge (64). The frequency of food acceptance defines how many times a food item can be served in a day, week, bi-monthly, tri-monthly, and monthly, etc. (66).

Several scales have been utilized in measuring food acceptance. The most general method is using a single stimulus method with a nine-point continuum or scale (64). The hedonic scale is a form of the rating scale method involving successive intervals (67). In questionnaire surveys Peryam and Pilgrim (67) described the continuum as like extremely to neither like nor dislike to dislike extremely (a nine-point scale). White (58) used a nine-point rating scale in determining food item acceptance with these categories: twice a day, once a day, every other day, twice a week, once a week, every other week, once a month, never, and not familiar with this food.

Peryam and Pilgrim (67) used a seven-point hedonic scale for measuring food preferences. Participants are asked to describe their feeling for a particular food or foods tasted in a laboratory setting by using a scale with points from like extremely to dislike extremely. Eindhoven and Peryam (68) studied the effects of preferences on food combinations. The questionnaire used blocks pairing a key food item with five other potato or vegetable items each with a 7-point rating scale. They found preferences for each item independent of desirability of main dish-potato pairings and main dish-vegetable pairings.

Both Gargano and Vaden (30) and Johnson and Vaden (5) used a three-point scale to describe the degree of certainty for intended choices and a four-point scale to describe entree likes and dislikes of respondents. The certainty scale consisted of: very sure, fairly sure, and not sure. The four-point preference scale included like, will eat, dislike, and don't know.

Carruth and Anderson (69) developed an attitude scale to study flexible and rigid attitudes towards nutritional practice changes. The scale consisted of a five-point response Likert scale with a continuum of strongly agree, agree, undecided, disagree, and strongly disagree measuring statements about nutrition practices. The statements were not accurate predictors of nutrition knowledge.

Pilgrim and Wood (70) tested the single rating method and the paired comparison method to compare their effectiveness in determining food preferences of Army personnel. With the paired comparison method respondents are asked to choose between sample pairs. They found that both methods were effective.

Schutz (62) used a food action rating scale (FACT) to measure food acceptance of fifty-four foods. One hundred people rated these foods using the FACT scale and the hedonic scale; the two methods were compared. There are three types of successive category-rating scales: quality judgment, like-dislike effect, and action. The action rating scale consisted of nine statements (nine-point) reflecting frequency of willingness to eat each food item. The hedonic scale described likes and dislikes. The action scale was more sensitive than the hedonic scale.

Other techniques used in determining opinions and feelings include open-ended questions and paired and multiple comparisons. A type of

paired comparison is the forced choice which makes respondents choose even if they like or dislike both choices. Crespi (71) indicated this technique is helpful when respondents do not have definite attitudes. Hansen (72) contended that choice process exists when more than one alternative is aroused.

Another type of technique (73) used to measure consumer intentions and purchase probability utilizes a flash card with probability scale from 10 to 0 with descriptions: certain, practically certain, almost sure, very probable, probable, good possibility, fairly good possibility, fair possibility, some possibility, slight possibility, very slight possibility, no chance, almost no chance. Markin (74) defined intention to purchase as the amount of commitment a person has to his anticipated course of action.

An experimental study on menu choice conducted at the University of New Hampshire (72) included ninety female and male college students. The offerings on nine predetermined menus categorized by attractiveness were arranged so that conflict would arise in making a decision. Menu items were ranked on a twenty-one point scale. When the situational variable of restaurant type was presented, the menu preferences remained relatively stable. The nine menu alternatives were ranked in attractiveness and, if relevant, rejectability.

Decision Making, Attitude, and Consumer Behavior

The three fundamental concepts of the decision process are (a) individual is confronted with making a choice, (b) individual chooses from among a set of alternatives, (c) individual chooses by ranking alternatives as to preference or value. The concept of utility is used in describing the strength of an individual's preference for an object. An

important assumption about utility measurement is that as the utility of two alternatives becomes closer, subjects experience greater discord and have difficulty in choosing one alternative (75).

Attitudes allow the respondent to choose without having to spend a lot of time learning and thinking about the response. Many decisions are programmed; they have been learned over time (76). Programmed decisions are routine and repetitive, such as selecting food. Much habitual behavior is routine (74, 77). An example of a consumption decision is deciding what meat will be served for dinner (76). Preferences are related to the amount of satisfaction a person receives from the product (76) and express a relationship between characteristics of goods and people (78). Hansen (72) has found that certainty in making a decision exists if all states of nature are known, and the decision maker knows exactly what will happen if he chooses one item over another.

Menu Selection Forecasting

Definition of Forecasting

Magee (81) described a forecast as an evaluation of incomplete evidence predicting the future. No forecast will be completely accurate because by definition it is an estimate or guide and should be appreciated in this light. Konnersman (82) stated that forecasts are needed to control under- and overproduction. McManis (83) found such factors affecting forecasting within residence hall foodservices as meal attendance records, student classification and sex, activities, and weather. Kotschevar (52) stated that resident count, weekend dormitory absentee counts, weather, menu, and season are important elements to consider in forecasting.

Forecasting Studies

At St. Joseph's College in Philadelphia cooked and prepared food are checked at fifteen minute intervals to allow the line to run smoothly. Forecasts of expected consumption have reduced overproduction and waste while aiding in keeping inventories to a minimum (38).

Schmitz (79) developed a system of establishing confidence limits to predict number of people choosing various general diet menu items. He stated that a 95 per cent confidence interval is desirable over a length of time for accuracy of prediction. The method involves multiplying confidence limits by daily hospital census. The method saved three hours of work daily, reduced food waste, and had a minimum of error.

Shriwise (10) studied food habits and student perceptions as factors affecting forecasting. Meal attendance and entree selection also were studied to aid in production forecasting. Day of week and type of entree significantly affected production demand.

Uhrich and Noort (80) formulated a method of production demand forecasting by analyzing the elements of population forecast and food preference prediction. This method allows the supervisor to focus attention on labor and food quality improvements.

Johnson and Vaden (5) compared actual entree decision with stated entree decisions as a means of forecasting. In general, food items stated as the preferred choice by a majority of students also were the leading choices from cafeteria lines; however, data on intended choices were not sufficiently accurate for production forecasting. Certainty about choices affected degree of accuracy of the forecasts; greater uncertainty about choices was related to greater discrepancy between actual and intended choices.

Gargano and Vaden (30) also studied choice selection, preference, and choice certainty for menu items as a forecasting tool by using two methods, questionnaire and slide approach. Intended and actual were compared as in Johnson's (20) study. Again, data from selections was not accurate for precise forecasting.

Forecasting Methods

Uhrich and Noort (80) described three forecasting methods: the educated guess, internal analysis, and statistical analysis. The "guess" method reflects the ideas and opinions of the person making the forecast and is not desirable because it lacks a systematic foundation. Internal analysis requires accuracy in record keeping; however, this method is time-consuming and disregards variables affecting demand. Statistical analysis included moving average techniques and exponential smoothing models; however, this method requires skilled personnel, computer assistance, and is time-consuming.

METHODOLOGY

Site of the Study

This study was conducted on the campus of a large university in Kansas. The enrollment of the university includes approximately 22,500 students enrolled in fifteen colleges or schools and the Graduate School. Nine residence halls on the campus house approximately 3900 students. Eight residence halls have self-contained foodservice divisions; the ninth hall has access to another hall's foodservice. The Director of Housing and the Director of Foodservice have responsibility for the residence hall foodservices. Each division has a dietitian or head supervisor, as well as full-time and student employees.

The first objective of the residence hall foodservices is to serve quality food that is nutritious, palatable, and safe to eat. The second objective is to create and maintain an atmosphere compatible with the overall social and cultural status of the living facilities. Another objective involves keeping food and labor costs at budgeted levels. These objectives are met by utilizing new foodservice technology, close supervision, and control of sanitation practices.

One foodservice division was the site for this study; the cafeteria serviced two halls housing approximately 737 freshmen and sophomore women. Three meals a day are served Monday through Saturday; brunch and supper are served on Sunday. One serving line is open for breakfast; hot breakfast lasts from 6:30 to 8:00 a.m. and bread and spread, from 8:00 to 9:00 a.m. At lunch one line is open from 10:45 a.m. to 1:00 p.m. Two

serving lines are open at dinner between 5:00 and 6:00 p.m. Sack lunches are available Monday through Friday and by special permission on weekends. All employees are allowed to purchase meals at specified rates.

The menus for all the residence halls are planned in sections. All foodservice division heads receive copies of the tentative entree selections which are reviewed one week ahead of service. The salads are planned by one dietitian; another plans the desserts; the director, the entrees. Menus are printed and distributed on Thursday or Friday of the week before service. Menus are noncyclic, tentative, and subject to change. This study followed very closely entree selections from a month's menu, excluding Saturdays and Sundays. Copies for the complete menus during the study period are included in Appendix A.

At lunch and dinner students may choose from a selection of entrees and alternatives. Two main dishes are always provided. Alternates provided are: cold cuts, cheese, eggs, and yogurt. At lunch two other alternates, soup and peanut butter, may be selected either as the main course or in addition to the main course. Peanut butter also is provided at dinner. For lunch student residents are allowed to have a half serving from the cold cut counter plus a half serving of a main entree. Seconds on soup and peanut butter also are possible. For dinner no mix and match of entrees and/or alternates is allowed; no seconds are allowed except of peanut butter. At dinner the serving combination from the cold cut counter is larger than at lunch to accommodate price comparison to the entree meat item.

Approval for the study was granted by the residence hall director, the Dean of Women's Office, and the Director of Foodservice. Related correspondence can be found in Appendix B. The guidelines specified by

the Dean of Women's Office were followed. All students were contacted in the dining room. None was contacted by telephone or mail.

Data Collection

Types of Data Collected

Two types of data were collected to fulfill the objectives of this study. Data collected included:

(a) actual selection data from cafeteria line for servings of entrees and alternates at lunch and dinner for twenty days;

(b) intended selections of entrees, including preferences and certainty of selection decision, as designated in a survey questionnaire.

Data were collected during the spring semester, 1977, for the pilot study and between September and December, 1977, for the final study.

Collection of Actual Selection Data

All cafeteria employees were given instructions for using single key tabulators and tally marks (Appendix C) to collect actual data. Each entree or combination of entrees was recorded on a single key tabulator (form included in Appendix D). Seconds were tallied on a sheet on a clipboard. At the end of the meal totals were recorded for each item or combination of items. Data were collected during lunch and dinner meals over a four-week period, Monday through Friday from September 26 to October 21, 1977. Weekend days were omitted because eating patterns were atypical on these days.

Development of the Instrument for
  Collection of Survey Data

The first phase of the pilot study consisted of recording actual number of entree servings for two weeks from Monday through Saturday. The second phase involved distribution of a pretest instrument which included a page of explanation and instructions for completing the questionnaire to a random sample of forty-eight students. The instrument asked students to state like and dislike for each entree and alternate, using a five-point scale, and to indicate intended selections of entrees or alternates. Part I consisted of a listing of twenty-four choices of luncheon and dinner entrees actually served on the luncheon and dinner menus, and students were asked to select an entree or an alternate, if one of the main entrees was not selected (Appendix E). This part was patterned after Gargano's and Johnson's studies. Each pair of entrees and alternate listings was numbered according to the order in which they were listed on the menus. Horizontal lines were used to divide the choices. Following is an example from the pretest instrument:

Luncheon Choices:

Choice #1
1. ___ Canadian Bacon, Lettuce, Tomato Sandwich on Bun

   ___ Chili Macaroni Casserole

Alternates:

   ___ Soup

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Dinner Choices:

Choice #1
1. ___ Pot Roast of Beef

   ___ Tuna Salad Bowl

Alternates:

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Part II asked students to state their likes and dislikes, using a
five-point scale (Appendix E). The following is an example:

Choice	Circle 1, 2, 3, 4, or 5				
	Like a lot	Will eat	Have not eaten	Do not like	Dislike a lot
	1	2	3	4	5
Canadian Bacon, Lettuce, Tomato/Bun	1	2	3	4	5

The final instrument consisted of a listing of thirty-nine pairs of
entrees and alternates as served for a four-week period including only
week days (Appendix F). The entree items were listed and numbered; a
table of random numbers was used to determine the order for listing
choices on the research instrument. Entree descriptions were included.
Horizontal lines were used to separate choices for ease in reading. The
final instrument included a page of explanation and instructions for com-
pleting the questionnaire. To facilitate the choice decision, instruc-
tions were printed at the top of each page. In addition the final
instrument also asked respondents to describe their certainty in making
the decision. A major difference between this instrument and that used
by Johnson and Vaden (5) was in the scales used. In this study, five-
point scales were used for the certainty and preference measures, rather
than the three-point scales. The certainty scale was defined at the top
of each page to facilitate response and remind respondents to describe
their certainty. The following is an example:

<u>Choice</u>

Check the item you would choose.
<u>Or</u> check the alternate you would choose.

How <u>sure</u> are you? (Circle)
1 = extremely sure
2 = moderately sure
3 = undecided
4 = moderately unsure
5 = extremely unsure

Check one:

Choice #1
1. ___ Fried Perch (fried breaded fish

___ Meat Balls (ground beef, seasonings)

Alternates:

___ Assorted Cold Cuts, Eggs, and Cheese

___ Yogurt

___ Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #2
2. ___ Hamburgers

___ Baked Cheese Sandwich (egg, milk, bread, and cheese custard)

Alternates:

___ Chicken Rice Soup

___ Assorted Cold Cuts, Eggs, and Cheese

___ Yogurt

___ Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Likes and dislikes were described in the same manner as in Part II of the pretest. The final instrument was a printed booklet with the cover page identifying the sponsor and title of the study.

Collection of Intended Selections
  and Preference Data

A random sample of 30 per cent of the residents (N = 737) was selected to participate. Two hundred and twenty-two participants and twenty-six alternates were selected.

The instrument was distributed personally by two student employees and the researcher between mid-November and mid-December, 1977. Both students were given instructions concerning the distribution procedures. Two lists of participants and alternates were made; each person was identified by the number originally assigned to her for selection of the random sample. These numbers were transferred to the questionnaire as each participant was contacted. For follow-up a new questionnaire was distributed to the nonrespondents.

All participants were contacted in the dining room during meal hours. The surveys were returned to one of two boxes located on each serving line. Two hundred questionnaires were returned; ten of the alternates were in the final sample.

RESULTS AND DISCUSSION

Survey of Preferences and Intended
Entree Selection Decisions

Description of Meal Attendance

Figure 1 presents the meal attendance for lunches throughout the
research period, excluding sack lunches. The regular lunch counts on
Mondays, Wednesdays, and Fridays were lower than the lunch counts on
Tuesdays and Thursdays. The lunch count on Tuesdays had the greatest
fluctuation of approximately fifty people from the first week to the third
week. The count on Monday was equal to or less than the count on Friday.
The Wednesday count was lower than the Monday and Friday counts in the
third week. The number of people eating on Thursday was lower than the
number eating on Tuesday except in the second week.

In Figure 2 the sack lunch attendance indicates that Monday and
Wednesday were high count days (100 or more) while Tuesday, Thursday, and
Friday counts were lower; this may partly explain the trend for Tuesday
and Thursday regular lunch counts to be higher than those for Monday,
Wednesday, and Friday attendance. Monday and Wednesday sack lunch counts
were the highest in the first week. Tuesday, Thursday, and Friday sack
lunch attendance was similar in the third week.

Friday dinner attendance was lower than Monday through Thursday
attendance in all instances (Figure 3). Monday and Wednesday dinner
attendance was highest the first week; lowest, the third week. Tuesday,
Thursday, and Friday counts were at their highest level in the third
week.

Figure 1. Meal attendance for lunch throughout
          four-week period
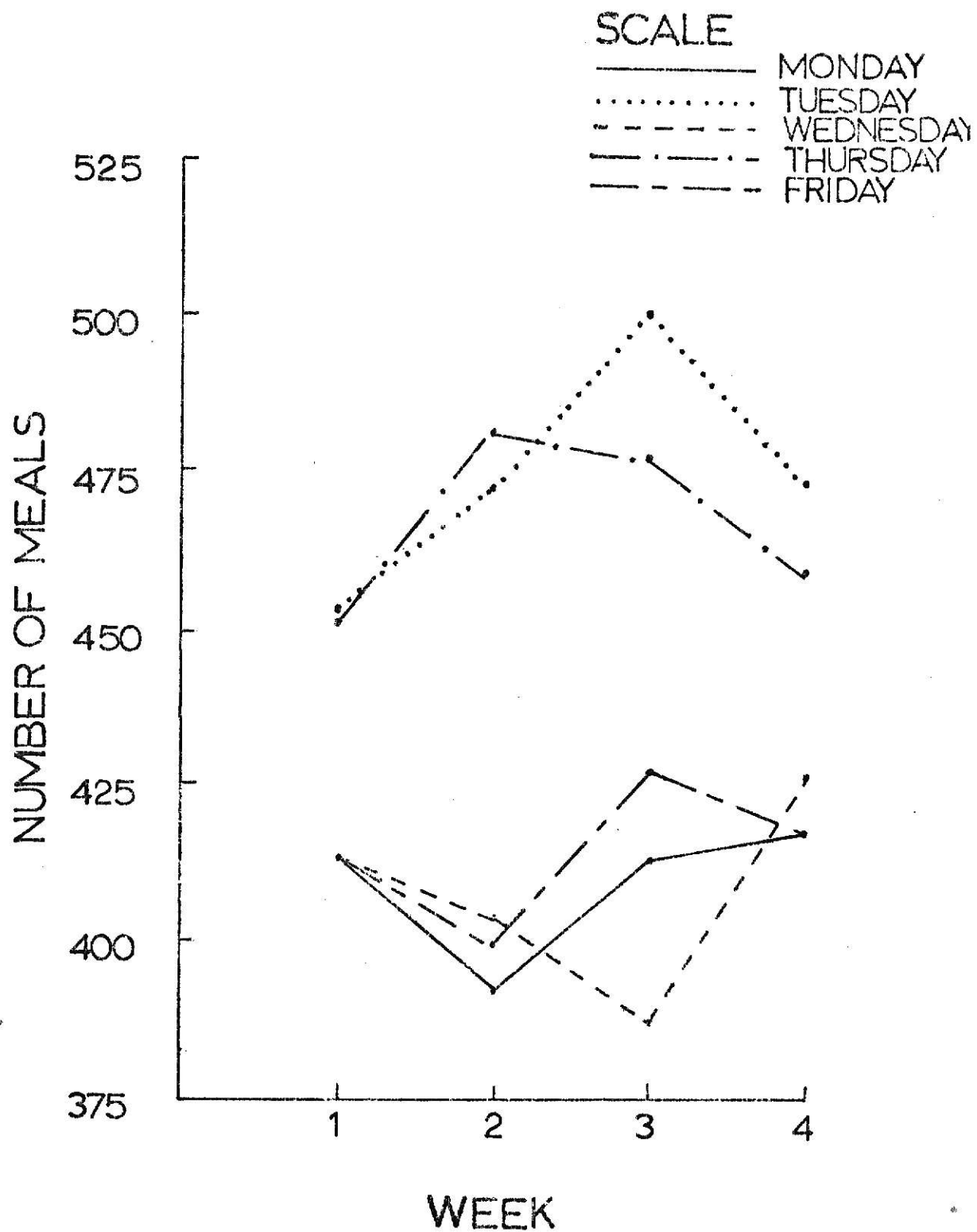
Figure 2. Sack lunch attendance throughout
four-week period
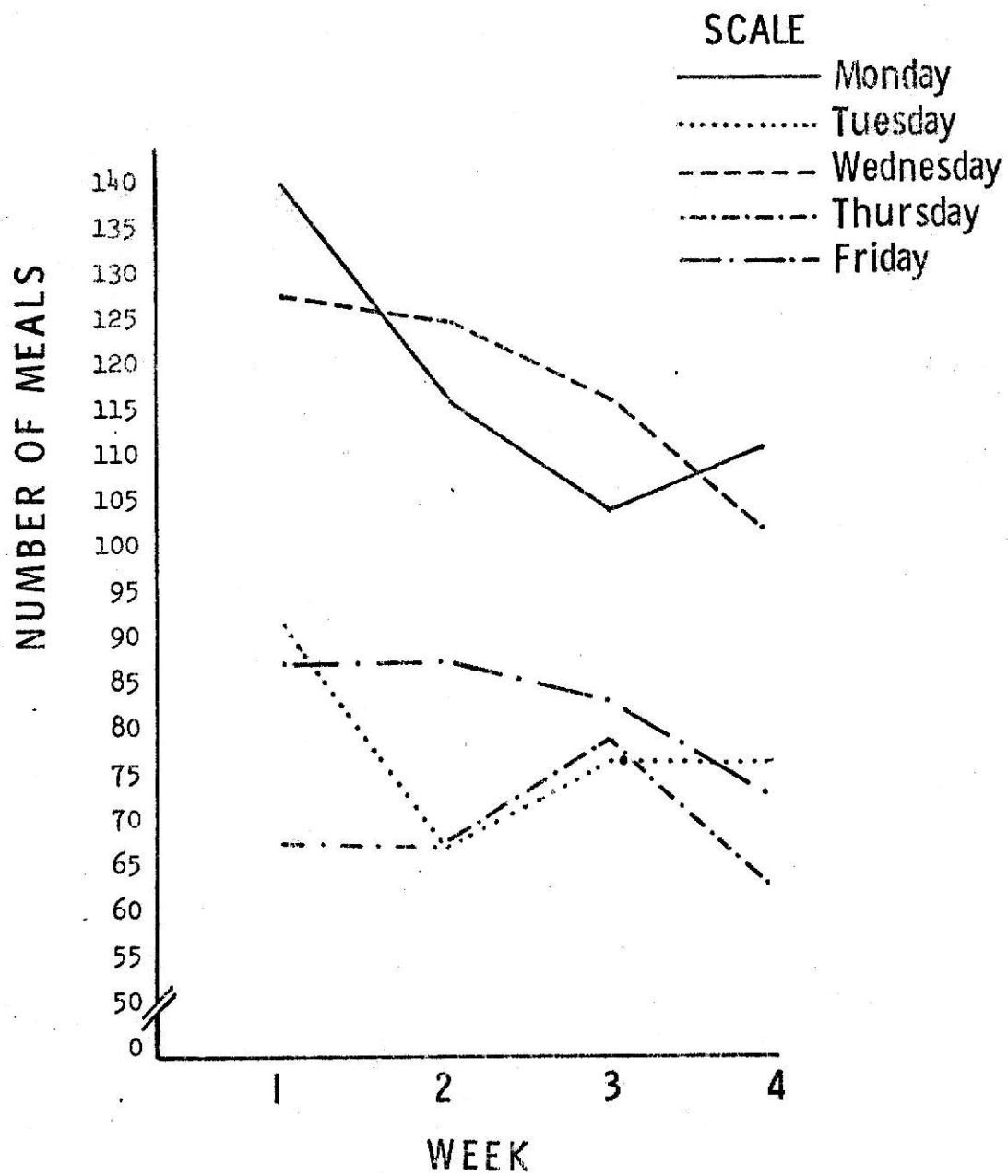
Figure 3. Meal attendance for dinner throughout
four-week period
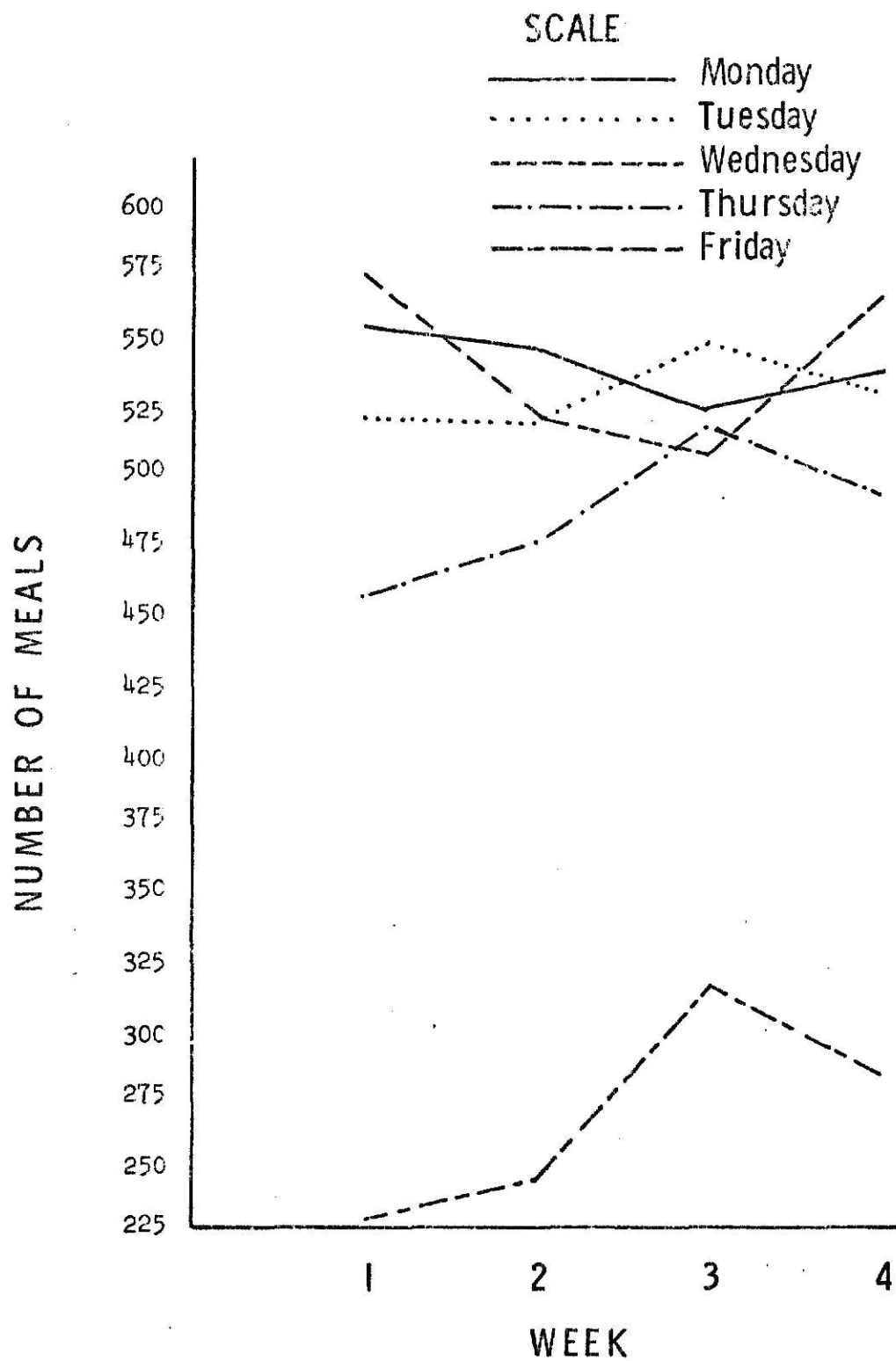
Preference Data

Preference by Entree Types. Similar entrees were grouped into categories as classified by Shriwise (10). Two additional categories, alternates and soup, were added to the entree categories. The 04-pork, chop or ham, 07-poultry, other, and 09-fish, baked categories were not used for this study. Paired, preplanned entrees were included in this study.

Table 1 is a compilation of the mean preference scores for the seventy-one entrees, three alternate categories, and twelve kinds of soup. Six entrees were included more than once in the paired choices; e.g. on different menus, hamburgers were paired with baked cheese sandwich, with salad plate, and with deviled egg and cheese plate. However, participants were asked only once their personal preference of an item. The three alternates were paired with each set of paired choices. Other entrees repeated on the menu included fried chicken, steak, pollock fish square, roast beef, and creamed chipped beef.

The mean preference values for the 01-roast beef category indicate that roast beef is a well liked food. These findings are similar to those found at North Central College in Illinois (54), at the University of the Pacific (11), by Einstein and Hornstein (55), Knickrehm et al. (6), Aboul-ela (2), Verzosa (12), Barlow (3), and Schuck (9).

The mean preference values indicate entrees in the 02-beef steak or cutlet, 03-ground beef, and 05-pork categories were neither liked nor disliked except for steak and barbequed spare ribs which were well liked. Steak was well liked in studies by Einstein and Hornstein (55), Johnson and Vaden (5), Knickrehm et al. (6), Shriwise (10), Warren (13), Spangler (56), Pilgrim (28), at North Central College (54), and at the University

Table 1: Mean preference scores for entree items by categories[1,2]

item	mean s.d.	item	mean s.d.	item	mean s.d.
01 beef: roast		06 poultry: fried or roast		10: salad plate (cont.)	
roast beef	1.65± .91	roast turkey	1.84±1.08	deviled egg, cheese	
		fried chicken	2.08±1.29	plate	2.63±1.27
02 beef: steak or cutlet		baked chicken	2.11±1.24	egg salad	2.73±1.36
8 oz. sirloin steak	1.47± .84				
pizza pattie	2.74±1.34	08 fish: fried		11: cold sandwich	
veal parmigiana	3.04±1.37	shrimp mates	2.34±1.48	mini submarine	1.99±1.08
veal cutlet	3.10±1.26	fish and chips	2.48±1.32	hoagie	2.15±1.19
		batter-dipped fish	2.98±1.40	canadian bacon	2.20±1.19
03 beef: ground		fried perch	3.09±1.36	turkey ham	2.45±1.27
meat loaf	2.54±1.31	pollock fish square	3.28±1.30		
meat balls	3.03±1.20			12: hot sandwich	
stuffed green peppers	3.30±1.48	10: salad plate		bacon, lettuce, tomato	1.68±1.00
		chef's salad	1.74± .93	hot roast beef	1.72± .97
05 pork: other		egg, tomato, cheese,		grilled cheese	2.03±1.02
barbequed spare ribs	1.74±1.12	turkey, ham plate	1.80± .89	rachel sandwich	2.30±1.30
roast pork loin	2.43±1.23	egg, pickle, ham,		sloppy joe	2.43±1.23
pork cutlet	2.81±1.33	cheese, tomato plate	1.97±1.11	reuben sandwich	2.77±1.49
polish sausage	3.13±1.32	graham crackers, fruit	2.11±1.12	pizza sandwich	2.80±1.24
sausage patties	3.20±1.33	chicken salad	2.33±1.19	fish stick sandwich	2.86±1.35
		pimiento cheese, fruit	2.37±1.21	broiled bologna and	
				cheese sandwich	2.95±1.41

[1]Entree categories specified by Shriwise (10). Items in categories 04, 07, 09 were not served on the menus. Categories 17 and 18 were added.

[2]Scale = 1, like a lot; 2, will eat; 3, neither like nor dislike; 4, do not like; 5, dislike a lot.

Table 1: (cont.)

item	mean s.d.	item	mean s.d.	item	mean s.d.
12: hot sandwich (cont.)		**14: casserole, creamed, extended main dishes (cont.)**		**17: alternates**	
wiener on bun	2.97±1.26			assorted cold cuts, eggs, and cheese	1.73±.96
baked cheese sandwich	3.21±1.27	pizza hotdish	3.06±1.31	yogurt	2.15±1.44
runza beef on bun	3.37±1.26	teriyaki/rice	3.20±1.44	peanut butter	2.16±1.27
		spanish rice	3.30±1.33		
13: hamburger sandwich		corned beef casserole	3.41±1.18	**18: soup**	
hamburger steak	2.21±1.14	**15: Italian, Mexican dishes**		chicken noodle	1.65±.96
hamburger on bun	2.26±1.20			chicken vegetable	1.99±1.14
		tacos	1.87±1.11	beef vegetable	2.04±1.12
14: casserole, creamed, extended main dishes		chili	2.01±1.16	beef noodle	2.08±1.10
macaroni and cheese	2.21±1.14	burritos/chili sauce	2.67±1.36	tomato	2.10±1.29
chicken pot pie	2.46±1.25			chicken rice	2.24±1.20
tuna noodle casserole	2.51±1.30	**16: other main dishes**		french onion	2.33±1.35
texas straw hat	2.71±1.43			minestrone	2.42±1.36
chicken rice casserole	2.73±1.20	ham and beans	2.98±1.37	potato	2.44±1.55
beef noodle casserole	2.74±1.17	dinner frankfurters	3.11±1.30	bean	2.94±1.52
peppered steak	2.78±1.33	lamb pattie	3.54±1.34	creole	3.04±1.27
chicken tetrazzini	2.82±1.28	liver and onions	4.09±1.42	corn chowder	3.71±1.40
chicken chow mein/rice	2.86±1.39				
beef macaroni casserole	2.94±1.12				
creamed chipped beef	2.94±1.48				
chili macaroni casserole	3.02±1.31				
spanish noodles	3.03±1.18				

of Illinois (4). Other preference values for 06-poultry, 11-cold sandwich, 13-hamburger sandwich, and 15-Italian, Mexican dishes are not in agreement with the study by Johnson and Vaden (5); foods in these categories had higher preference scores in that study. Einstein and Hornstein (55) and Verzosa (12) found veal items to be unfamiliar while Knickrehm (6) and Pilgrim (28) found them disliked. Aboul-ela (2) also found meat loaf items to be well liked, and Warren (13) found stuffed peppers as disliked. Johnson and Vaden (5) and Warren (13) also found spare ribs were liked.

Poultry items were well liked as found in other studies (2, 3, 6, 12, 13, 28, 55). Fish items were neither liked nor disliked. Shrimp mates were the best liked in comparison to studies using french-fried shrimp (12).

The salad plate values ranked in the "will eat" and the "neither like nor dislike" ranges. In this study all salad plates were described in the preference questionnaire.

The cold sandwich rankings were in the "will eat" category while the hot sandwich items had a high percentage of "will eat" and "neither liked nor disliked" rankings. Broiled bologna and cheese sandwich, wiener on bun, baked cheese sandwich, and runza beef on bun were the least liked sandwiches. Bacon, lettuce, and tomato, hot roast beef sandwich, and mini submarine were the best liked sandwiches. Bacon, lettuce, and tomato results were similar to those of Knickrehm et al. (5, 6, 12).

Mean preference values for the hamburger sandwich group indicated that items would be eaten. Hamburgers were less less liked than in the study by Johnson and Vaden (5). Rankings were similar to those of Johnson and Vaden for the cold and hot sandwiches.

Casseroles and extended main dishes were not any less popular than some of the hot sandwiches and foods in the other categories. The least preferred main dish combinations were corned beef casserole, spanish rice, and teriyaki/rice. Casseroles were ranked in the "will eat" and "neither like nor dislike" preference categories.

Chili and tacos were acceptable. Ratings were higher than those for hamburgers and for most of the hot sandwiches. Other main dishes were less well liked. Liver and onions was ranked as "do not like" as found in other studies (2, 6, 9, 13, 56, 59).

As an alternate choice, the category of assorted cold cuts, eggs, and cheese, was more popular than these main entrees: hamburger sandwiches, shrimp, spare ribs, roast turkey, and grilled cheese sandwiches. However, the mean preference value was similar to the value for a chef's salad which ranked in the "will eat" category.

Most of the soups were rated in the "will eat" category. Bean soup ranked as "neither like nor dislike"; whereas Einstein and Hornstein (55) found bean soup was disliked. Chicken noodle soup was most liked followed by vegetable, tomato, and bean; this ranking parallels Verzosa's findings (12). Corn chowder was disliked.

Liked, Disliked, and Never Been Eaten Entrees. Items were grouped into categories in relation to preference responses. Table 2 summarizes entrees liked by 40 per cent or more of the respondents, those disliked by 25 per cent or more, and those that had never been eaten by 25 per cent or more of the respondents.

Sirloin steak was the most liked entree item (65.5 per cent of responses) listed on the instrument (Table 2). Bacon, lettuce, tomato

Table 2: Entree items liked a lot, disliked, and have not eaten by residence hall students (N = 200)

items liked by 40% or more	
item	% "like" responses
8 oz. sirloin steak	65.5
bacon, lettuce, tomato sandwich	55.0
roast beef	55.0
chicken noodle soup	50.5
roast turkey	48.5
assorted cold cuts, eggs, and cheese	48.0
hot roast beef sandwich	47.5
tacos	44.0
barbequed spare ribs	43.5
fried chicken	43.5

items disliked by 25% or more	
item	% "dislike" responses
liver and onions	56.5
lamb pattie	40.0
stuffed green peppers	37.5
spanish rice	37.0
teriyaki and rice	37.0
veal cutlet	35.5
veal parmigiana	35.5
dinner frankfurters	35.0
sausage patties	34.0
wieners	34.0
broiled bologna and cheese sandwich	33.5
polish sausage	33.5
reuben sandwich	33.5
batter-dipped fish	32.5
corned beef casserole	32.5
ham and beans	32.0
bean soup	31.5
fried perch	31.5
pizza hotdish	29.5
creamed chipped beef	29.0
meat balls	29.0
spanish noodles	29.0

items disliked (cont.)	
item	% "dislike" responses
chili macaroni casserole	28.5
chicken chow mein	27.5
fish stick sandwich	26.0
peppered steak	26.0
pork cutlet	26.0
baked cheese sandwich	25.5
beef macaroni casserole	25.5
burritos with chili sauce	25.5
pollock fish square	25.5
corn chowder soup	25.0

items have not eaten by 25% or more	
item	% "have not eaten" responses
runza beef on bun	63.5
creole soup	62.5
corn chowder soup	61.5
baked cheese sandwich	43.0
texas straw hat	42.0
pollock fish square	40.5
minestrone soup	35.0
pizza hotdish	33.5
deviled egg, cheese plate	33.0
corned beef casserole	32.5
lamb pattie	31.0
chili macaroni casserole	30.5
pimiento cheese, fruit plate	30.0
chicken tetrazzini	30.0
graham crackers, fruit plate	29.5
bean soup	28.5
chicken pot pie	27.5
stuffed green peppers	27.5
creamed chipped beef	27.0
rachel sandwich	27.0
egg salad	25.5
barbequed spare ribs	25.0
liver and onions	25.0

sandwiches, roast beef, chicken noodle soup, roast turkey, and assorted cold cuts, eggs, and cheese were among the most popular main dishes, alternates, or soups.

Disliked items included liver, stuffed peppers (similar to Warren findings (13)), lamb, spanish rice, and teriyaki with rice. In comparison to Johnson's study (5) in which salad plates were disliked, this study had no salad plates as disliked by 25 per cent or more of the respondents. Several casseroles or combination dishes were disliked. Wieners were disliked as also found by the University of Illinois (4). Items included in the "have not eaten" group by 25 per cent or more of the respondents included runza beef, creole soup, corn chowder, baked cheese sandwich, and texas straw hat. Liver and lamb also were listed in this grouping. Runza beef was unfamiliar to 8 per cent in Knickrehm et al. studies (6). Several fruit or salad plates had never been eaten.

Intended Selection and Certainty of Choice Data

Luncheon Entrees

Certainty of choice and selection intention responses for luncheon entrees and alternates are shown in Table 3. The percentages of the sample intending to select a certain item, mean certainty scores, and overall mean certainty scores are given. With the exception of eleven different items in the twenty sets of choices the degree of certainty favored the moderately sure category. For overall certainty all choice sets indicated at least moderate sureness in certainty.

In thirteen of the twenty sets of choices (comparing two choices with mean certainty for total other alternates) the mean score showed highest certainty for the item or category with the higher per cent for intended

Table 3: Students' intended luncheon entree selections and certainty scores (N = 200)

choice no.[1]	selection	intended selection	certainty score[2]			
			item		overall	
		%	mean	s.d.[3]	mean	s.d.
2	hamburgers	60.0	1.66 ±	.83		
	baked cheese sandwich	9.5	1.95 ±	.91		
	other	30.5	1.84 ±	.86		
	cold cuts	11.5	1.52 ±	.51		
	yogurt	4.0	1.75 ±	.71		
	peanut butter	2.5	1.60 ±	.55		
	chicken rice soup	12.5	2.20 ±	1.08	1.74 ±	.84
3	hamburgers	45.2	1.80 ±	.89		
	pimiento cheese, fruit plate	25.6	1.80 ±	.83		
	other	29.2	1.90 ±	.99		
	cold cuts	10.1	2.00 ±	1.21		
	yogurt	4.5	2.11 ±	1.05		
	peanut butter	1.5	1.67 ±	.58		
	beef vegetable soup	13.1	1.77 ±	.82	1.83 ±	.89
5	pizza sandwich	36.4	1.88 ±	.92		
	chicken tetrazzini	25.3	1.96 ±	.78		
	other	38.3	1.86 ±	1.05		
	cold cuts	23.2	1.85 ±	1.07		
	yogurt	8.6	1.76 ±	.97		
	peanut butter	2.0	2.25 ±	.50		
	bean soup	4.5	1.89 ±	1.36	1.89 ±	.94
8	spanish rice	20.3	1.88 ±	1.04		
	broiled bologna and cheese sandwich	27.9	1.98 ±	.99		
	other	51.9	1.92 ±	.97		
	cold cuts	23.9	1.77 ±	.91		
	yogurt	10.7	1.86 ±	.96		
	peanut butter	4.1	2.63 ±	1.19		
	minestrone soup	13.2	2.04 ±	.96	1.94 ±	.98

[1]Number indicates placement on research instrument.

[2]Scale = 1, extremely sure; 2, moderately sure; 3, undecided; 4, moderately unsure; 5, extremely unsure.

[3]Mean certainty score for those who selected each item.

Table 3: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
12	wieners	25.0	2.08 ±	.88		
	spanish noodles	20.5	2.02 ±	.82		
	other	54.5	1.90 ±	1.02		
	cold cuts	25.5	1.90 ±	1.02		
	yogurt	7.0	1.79 ±	1.12		
	peanut butter	2.5	2.40 ±	1.52		
	french onion soup	19.5	1.87 ±	.92	1.97 ±	.95
13	pizza hotdish	17.0	1.85 ±	.89		
	reuben sandwich	35.0	1.80 ±	.86		
	other	48.0	1.91 ±	.86		
	cold cuts	21.0	1.90 ±	.93		
	yogurt	7.0	1.79 ±	.89		
	peanut butter	1.0	1.50 ±	.71		
	beef vegetable soup	19.0	1.97 ±	.79	1.86 ±	.86
14	hoagies	44.7	1.70 ±	.92		
	chicken rice casserole	18.6	1.86 ±	.48		
	other	36.7	1.73 ±	.75		
	cold cuts	13.1	1.85 ±	.67		
	yogurt	8.5	1.53 ±	.51		
	peanut butter	3.0	2.17 ±	1.60		
	beef noodle soup	12.1	1.63 ±	.65	1.74 ±	.79
15	hamburgers	51.8	1.68 ±	.82		
	deviled egg, cheese plate	25.6	1.82 ±	.95		
	other	22.6	1.98 ±	.97		
	cold cuts	11.6	2.13 ±	1.18		
	yogurt	5.5	2.00 ±	.77		
	peanut butter	0.5	1.00 ±	0.00		
	minestrone soup	5.0	1.70 ±	.48	1.78 ±	.89
17	chili macaroni casserole	30.2	2.05 ±	.93		
	egg salad	24.6	1.84 ±	1.03		
	other	45.2	1.86 ±	.95		
	cold cuts	17.1	2.03 ±	.87		
	yogurt	6.5	1.77 ±	.73		
	peanut butter	2.5	2.40 ±	1.67		
	tomato soup	19.1	1.66 ±	.97	1.91 ±	.97

Table 3: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
22	mini submarine	45.2	1.61 ±	.77		
	creamed chipped beef/toast	18.6	1.76 ±	.98		
	other	36.1	1.83 ±	.95		
	cold cuts	15.1	2.00 ±	.98		
	yogurt	9.5	1.74 ±	.87		
	peanut butter	2.0	1.50 ±	1.00		
	potato soup	9.5	1.74 ±	.99	1.72 ±	.88
23	fish stick sandwich	23.0	2.11 ±	1.20		
	beef macaroni casserole	22.5	1.91 ±	.82		
	other	54.5	1.84 ±	.78		
	cold cuts	22.5	1.80 ±	.69		
	yogurt	9.5	1.74 ±	.81		
	peanut butter	2.0	2.00 ±	.82		
	beef vegetable soup	20.5	1.93 ±	.88	1.92 ±	.90
27	ham and beans	19.0	1.97 ±	1.20		
	sloppy joe sandwich	43.5	1.82 ±	.79		
	other	37.5	1.83 ±	.89		
	cold cuts	15.5	1.77 ±	.99		
	yogurt	6.0	1.42 ±	.67		
	peanut butter	3.0	1.67 ±	.82		
	chicken rice soup	13.0	2.12 ±	.82	1.86 ±	.91
29	grilled cheese sandwich	38.7	1.66 ±	.80		
	chili	43.2	1.66 ±	.85		
	other	18.1	1.53 ±	.70		
	cold cuts	5.5	1.45 ±	.69		
	yogurt	2.5	1.20 ±	.45		
	peanut butter	--	--			
	chicken noodle soup	10.1	1.65 ±	.75	1.65 ±	.81
32	rachel sandwich	49.0	1.74 ±	.88		
	beef noodle casserole	17.0	2.18 ±	1.11		
	other	34.0	1.81 ±	.80		
	cold cuts	13.5	1.74 ±	.59		
	yogurt	6.5	1.85 ±	.90		
	peanut butter	1.0	2.50 ±	2.12		
	chicken vegetable soup	13.0	1.81 ±	.85	1.84 ±	.91

Table 3: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
33	hot roast beef sandwich	73.0	1.60 ±	.80		
	egg, pickle, ham, cheese,					
	tomato plate	14.5	1.41 ±	.73		
	other	12.5	2.04 ±	1.10		
	cold cuts	5.0	2.00 ±	.67		
	yogurt	4.0	1.50 ±	.76		
	peanut butter	1.5	3.00 ±	1.73		
	creole soup	2.0	2.50 ±	1.73	1.63 ±	.85
34	canadian bacon sandwich	36.2	2.01 ±	1.12		
	macaroni and cheese	41.2	1.65 ±	.73		
	other	22.6	1.76 ±	1.05		
	cold cuts	13.1	1.81 ±	.98		
	yogurt	5.5	1.64 ±	.92		
	peanut butter	2.5	1.80 ±	1.79		
	corn chowder soup	1.5	1.67 ±	1.15	1.80 ±	.97
35	bacon, lettuce, tomato					
	sandwich	71.5	1.41 ±	.73		
	corned beef casserole	3.0	1.83 ±	.75		
	other	25.5	1.65 ±	.77		
	cold cuts	7.5	1.93 ±	.88		
	yogurt	4.5	1.56 ±	.53		
	peanut butter	2.5	2.00 ±	1.22		
	chicken noodle soup	11.0	1.41 ±	.59	1.49 ±	.74
36	turkey ham sandwich	27.6	2.00 ±	1.11		
	texas straw hat	34.7	1.93 ±	.98		
	other	37.7	1.75 ±	.76		
	cold cuts	17.6	2.03 ±	.79		
	yogurt	5.0	1.60 ±	.52		
	peanut butter	2.5	2.00 ±	1.22		
	potato soup	12.6	1.36 ±	.49	1.88 ±	.94
37	runza beef on bun	9.0	2.39 ±	1.46		
	creamed chipped beef/toast	21.5	1.70 ±	.86		
	other	69.5	1.83 ±	.90		
	cold cuts	28.0	1.84 ±	.85		
	yogurt	10.0	1.70 ±	.80		
	peanut butter	5.5	2.27 ±	1.27		
	chicken noodle soup	26.0	1.79 ±	.89	1.86 ±	.96

Table 3: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
38	tacos	63.8	1.57 ±	.89		
	tuna noodle casserole	19.1	1.89 ±	1.03		
	other	17.0	1.76 ±	1.05		
	cold cuts	5.0	1.50 ±	.53		
	yogurt	4.0	2.13 ±	1.25		
	peanut butter	2.0	2.75 ±	1.71		
	potato soup	6.0	1.42 ±	.79	1.67 ±	.95

selection. For eight of the choice sets more participants intended to select the alternates (other) instead of the paired choices: pizza sandwich vs. chicken tetrazzini, spanish rice vs. broiled bologna and cheese sandwich, wieners vs. spanish noodles, pizza hotdish vs. reuben sandwich, chili macaroni casserole vs. egg salad, fish stick sandwich vs. beef macaroni casserole, turkey ham sandwich vs. texas straw hat, runza beef on bun vs. creamed chipped beef/toast. For nine choices the mean score for cold cuts was equal to or more certain than scores for the two main dishes. In twelve instances the mean certainty for yogurt was equal to or lower than the two main luncheon choices, indicating a greater degree of certainty. In half of the instances the mean score for peanut butter indicated a lesser degree of certainty than for the paired luncheon choices. As found in Johnson's study (5) mean certainty scores were similar in instances where equally intended choice items and alternates were paired (e.g. pizza sandwich vs. other, wieners vs. spanish noodles, sloppy joe sandwich vs. other, grilled cheese vs. chili, turkey ham sandwich vs. texas straw hat).

In thirteen instances more certainty was associated with the intended choice by the most respondents in a listed pair, excluding alternate choices. Similar to Johnson's finding the more preferred items were chosen by respondents in comparing the two main entrees. Of forty luncheon main dishes eight had preference scores equal to or better than those for yogurt and peanut butter; two were better than the score for assorted cold cuts, eggs, and cheese. One kind of soup, chicken noodle soup, had a preference rating score lower than the score for cold cuts. Statistical tests of differences between means were not computed.

More students chose hamburgers when paired with a lesser preferred cheese sandwich than with a salad plate. In a majority of selections sandwiches were chosen over casseroles. Luncheon main dish salad plates were less popular than findings in Johnson's study (5). However, respondents could have chosen cold cuts and made a chef's salad at lunch or a sandwich which might affect salad plate popularity or cold sandwich popularity.

Dinner Entrees

Table 4 presents the mean certainty scores for dinner entrees and alternates. The mean degrees of certainty for the two main entrees and overall indicate that in general, the participants were at least moderately sure of their selection. When steak was served, the overall certainty indicates extreme sureness in choice. In fifteen of nineteen instances the mean certainty was greater for the item choice or alternate with the highest percentage of intended selection. In seven instances more respondents intended to select the alternates instead of the paired choices: fried perch vs. meat balls, pork cutlet vs. teriyaki, chicken chow mein vs. veal parmigiani, batter-dipped fish vs. stuffed green peppers, pollock fish square vs. burritos with chili sauce, pollock fish square vs. dinner frankfurters, veal cutlet vs. polish sausage. In nine instances the mean certainty for cold cuts selection at least was equal to certainty of choice for the two main dishes, regardless of whether the set had a greater percentage intending to select cold cuts or not. In thirteen instances the mean certainty for the yogurt choice was at least as strong as that of the two main dinner choices. In eleven instances the mean score for peanut butter indicated a lesser degree of certainty than for the paired dinner choices.

Table 4: Students' intended dinner entree selections and certainty
scores (N = 200)

choice no.[1]	selection	intended selection	certainty score[2]			
			item		overall	
		%	mean	s.d.[3]	mean	s.d.
1	fried perch	28.9	1.84 ±	.68		
	meat balls	26.9	2.19 ±	.92		
	other	44.1	1.83 ±	.75		
	cold cuts	27.9	1.84 ±	.83		
	yogurt	13.7	1.78 ±	.58		
	peanut butter	2.5	2.00 ±	.71	1.93 ±	.80
4	baked chicken	67.2	1.59 ±	.85		
	lamb pattie	5.6	2.00 ±	.45		
	other	27.3	1.70 ±	.77		
	cold cuts	16.7	1.67 ±	.74		
	yogurt	7.6	1.60 ±	.63		
	peanut butter	3.0	2.17 ± 1.17		1.64 ±	.82
6	pork cutlet	28.6	1.86 ±	.83		
	teriyaki/rice	23.1	1.96 ±	.92		
	other	48.3	1.80 ±	.89		
	cold cuts	33.2	1.91 ±	.94		
	yogurt	12.1	1.50 ±	.59		
	peanut butter	3.0	1.83 ± 1.17		1.86 ±	.87
7	fried chicken	65.3	1.52 ±	.94		
	liver and onions	8.0	1.50 ±	.63		
	other	26.6	1.72 ± 1.04			
	cold cuts	17.1	1.68 ± 1.04			
	yogurt	7.5	1.73 ±	.80		
	peanut butter	2.0	2.00 ± 2.00		1.58 ±	.95
9	8 oz. sirloin steak	91.0	1.33 ±	.82		
	egg, tomato, cheese, turkey, ham plate	7.5	1.67 ±	.90		
	other	1.5	1.00 ± 0.00			
	cold cuts	1.0	1.00 ± 0.00			
	yogurt	0.5	1.00 ± 0.00			
	peanut butter	--	--		1.35 ±	.83

[1]Number indicates placement on research instrument.

[2]Scale = 1, extremely sure; 2, moderately sure; 3, undecided;
4, moderately unsure; 5, extremely unsure.

[3]Mean certainty score for those who selected each item.

Table 4: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
10	fish and chips	37.5	1.71 ±	.88		
	chicken pot pie	35.0	1.80 ±	.83		
	other	27.5	1.76 ±	.84		
	cold cuts	15.5	1.74 ±	.93		
	yogurt	9.5	1.68 ±	.67		
	peanut butter	2.5	2.20 ±	.84	1.76 ±	.85
11	chicken chow mein/rice	31.2	1.94 ±	.99		
	veal parmigiani	23.6	2.06 ±	1.17		
	other	45.3	1.78 ±	.88		
	cold cuts	31.2	1.73 ±	.81		
	yogurt	10.6	1.57 ±	.68		
	peanut butter	3.5	2.86 ±	1.35	1.90 ±	.99
16	batter-dipped fish	28.3	2.00 ±	1.06		
	stuffed green peppers	26.8	1.91 ±	1.18		
	other	44.9	1.81 ±	.93		
	cold cuts	30.3	1.80 ±	1.02		
	yogurt	10.6	1.86 ±	.73		
	peanut butter	4.0	1.75 ±	.71	1.88 ±	1.04
18	graham crackers, fruit plate	12.6	1.68 ±	.85		
	roast beef	78.9	1.54 ±	.84		
	other	8.5	1.71 ±	.59		
	cold cuts	4.0	1.63 ±	.52		
	yogurt	3.5	1.57 ±	.53		
	peanut butter	1.0	2.50 ±	.71	1.58 ±	.81
19	pollock fish square	12.1	1.92 ±	.97		
	burritos with chili sauce	43.4	1.76 ±	.85		
	other	44.4	1.70 ±	.89		
	cold cuts	30.8	1.64 ±	.88		
	yogurt	10.6	1.81 ±	.68		
	peanut butter	3.0	2.00 ±	1.55	1.76 ±	.87
20	pizza pattie	18.0	1.75 ±	.84		
	roast turkey	66.5	1.55 ±	.84		
	other	15.5	1.90 ±	.91		
	cold cuts	7.0	1.43 ±	.51		
	yogurt	5.0	2.10 ±	.88		
	peanut butter	3.5	2.57 ±	1.13	1.64 ±	.86

Table 4: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
21	8 oz. sirloin steak	65.0	1.45 ±	.88		
	barbequed spare ribs	30.5	1.46 ±	.67		
	other	4.5	2.22 ±	1.30		
	cold cuts	2.0	2.00 ±	1.41		
	yogurt	0.5	1.00 ±	0.00		
	peanut butter	2.0	2.75 ±	1.26	1.49 ±	.86
24	pollock fish square	14.1	2.11 ±	1.10		
	dinner frankfurters	27.6	1.95 ±	.83		
	other	58.3	1.74 ±	.87		
	cold cuts	36.7	1.81 ±	.91		
	yogurt	17.6	1.54 ±	.56		
	peanut butter	4.0	2.00 ±	1.41	1.85 ±	.90
25	peppered steak	25.1	1.88 ±	.80		
	shrimp mates	47.7	1.69 ±	1.03		
	other	27.1	2.15 ±	1.00		
	cold cuts	17.1	2.06 ±	1.01		
	yogurt	5.5	1.91 ±	.54		
	peanut butter	4.5	2.78 ±	1.20	1.86 ±	.98
26	meat loaf	36.7	1.90 ±	.95		
	roast pork	38.2	1.79 ±	.85		
	other	25.1	1.68 ±	.65		
	cold cuts	17.6	1.63 ±	.65		
	yogurt	5.0	1.70 ±	.48		
	peanut butter	2.5	2.00 ±	1.00	1.80 ±	.85
28´	veal cutlet	25.1	2.04 ±	1.05		
	polish sausage	19.1	2.00 ±	.93		
	other	55.8	1.80 ±	.83		
	cold cuts	35.2	1.81 ±	.80		
	yogurt	15.1	1.73 ±	.91		
	peanut butter	5.5	1.91 ±	.83	1.90 ±	.91
30	sausage patties	7.5	2.33 ±	.98		
	fried chicken	63.3	1.63 ±	.86		
	other	29.1	1.83 ±	.88		
	cold cuts	15.6	1.77 ±	.76		
	yogurt	9.5	1.63 ±	.76		
	peanut butter	4.0	2.50 ±	1.31	1.74 ±	.89

Table 4: (cont.)

choice no.	selection	intended selection	certainty score			
			item		overall	
		%	mean	s.d.	mean	s.d.
31	hamburger steak	49.2	1.83 ±	.95		
	chicken salad	28.6	1.75 ±	.81		
	other	22.1	1.70 ±	.70		
	cold cuts	13.1	1.85 ±	.73		
	yogurt	7.5	1.53 ±	.64		
	peanut butter	1.5	1.33 ±	.58	1.78 ±	.86
39	roast beef	63.5	1.55 ±	.82		
	chef's salad	29.5	1.81 ±	.90		
	other	7.0	1.57 ±	.65		
	cold cuts	4.5	1.67 ±	.71		
	yogurt	2.5	1.40 ±	.55		
	peanut butter	--	--		1.63 ±	.84

Mean certainty scores were similar for items that equal numbers of respondents intended to select (e.g., pork cutlet vs. teriyaki, fish and chips vs. chicken pot pie, batter-dipped fish vs. stuffed green peppers, burritos with chili sauce vs. other, meat loaf vs. roast pork, veal cutlet vs. polish sausage, chicken salad vs. cold cuts). In a majority of cases where more respondents chose one dinner entree over another, they were surer of their choice than those who had chosen the other entree.

More certainty was associated with fried chicken vs. liver and onions than the chicken vs. sausage patties. Students were more certain of selecting steak over a salad plate than when it was served with barbequed spare ribs. A greater degree of certainty for selection of pollock fish square vs. burritos with chili sauce than pollock vs. dinner frankfurters was indicated. Respondents showed little difference for certainty in selecting roast beef when it was paired with a fruit salad plate than when paired with a chef's salad.

Actual Selection Data

Actual entree selection data were collected over a four-week period corresponding to the four weeks of selective menus utilized in construction of the research instrument (Appendix A). Data for entree selection are summarized in Tables 5 and 6. One dinner menu was omitted since it had been served twice. In this study no additional entrees were added except in the case where the amount of chicken salad was insufficient late in the service time. In that instance tomatoes were added to the cold cut counter for "make-your-own" chef's salad. Cold cuts, eggs, cheese, yogurt, and peanut butter were offered for those not liking the two main entrees on the menu.

Table 5: Actual and intended luncheon entree choices and certainty scores

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score [1] mean s.d.
34	canadian bacon sandwich	36.2	168	35.3		
	macaroni and cheese	41.2	203	42.6	0.41^2	$1.80 \pm .97$
	other	22.6	105	22.1		
38	tacos	63.8	274	66.7		
	tuna noodle casserole	19.1	67	16.3	2.21	$1.67 \pm .95$
	other	17.0	70	17.0		
22	mini submarine	45.2	221	53.1		
	creamed chipped beef/toast	18.6	73	17.6	11.31^3	$1.72 \pm .88$
	other	36.1	122	29.3		
3	hamburgers	45.2	200	53.8		
	pimiento cheese, fruit plate	25.6	58	15.6	20.86	$1.83 \pm .89$
	other	29.2	114	30.6		
5	pizza sandwich	36.4	188	46.5		
	chicken tetrazzini	25.3	100	24.8	21.14	$1.89 \pm .94$
	other	38.3	116	28.7		

[1]Certainty score = 1, extremely sure to 5, extremely unsure of intended choice.

[2]χ^2 values less than 5.99, nonsignificant.

[3]χ^2 values greater than 9.21, $P \leq .01$.

Table 5: (cont.)

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score mean ± s.d.
15	hamburgers	51.8	225	56.7	24.41	1.78 ± .89
	deviled egg, cheese plate	25.6	60	15.1		
	other	22.6	112	28.2		
14	hoagies	44.7	197	44.9	25.61	1.74 ± .79
	chicken rice casserole	18.6	119	27.1		
	other	36.7	123	28.0		
27	ham and beans	19.0	43	11.3	29.86	1.86 ± .91
	sloppy joe sandwich	43.5	216	56.5		
	other	37.5	123	32.2		
29	grilled cheese sandwich	38.7	216	52.0	32.20	1.65 ± .81
	chili	43.2	133	32.0		
	other	18.1	66	16.0		
33	hot roast beef sandwich	73.0	261	66.7	43.92	1.63 ± .85
	egg, pickle, ham, cheese, tomato plate	14.5	39	10.0		
	other	12.5	91	23.3		
36	turkey ham sandwich	27.6	99	25.6	58.17	1.88 ± .94
	texas straw hat	34.7	214	55.3		
	other	27.7	74	19.1		
17	chili macaroni casserole	30.2	154	39.1	60.21	1.91 ± .97
	egg salad	24.6	138	35.0		
	other	45.2	102	25.9		

Table 5: (cont.)

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score mean	s.d.
8	spanish rice	20.3	91	19.5			
	broiled bologna and cheese sandwich	27.9	210	45.1	73.78	1.94 ±	.98
	other	51.9	165	35.4			
35	bacon, lettuce, tomato sandwich	71.5	275	72.1			
	corned beef casserole	3.0	41	10.8	87.16	1.49 ±	.74
	other	25.5	65	17.1			
32	rachel sandwich	49.0	229	50.4			
	beef noodle casserole	17.0	148	32.6	103.95	1.84 ±	.91
	other	34.0	77	17.0			
12	wieners	25.0	209	46.0			
	spanish noodles	20.5	103	22.6	125.21	1.97 ±	.95
	other	54.5	143	31.4			
2	hamburgers	60.0	184	45.3			
	baked cheese sandwich	9.5	125	30.8	214.07	1.74 ±	.84
	other	30.5	97	23.9			
13	pizza hotdish	17.0	188	41.9			
	reuben sandwich	35.0	159	35.4	223.19	1.86 ±	.86
	other	48.0	102	22.7			
23	fish stick sandwich	23.0	213	43.1			
	beef macaroni casserole	22.5	178	36.0	229.77	1.92 ±	.90
	other	54.5	103	20.9			

Table 5: (cont.)

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score mean ± s.d.
37	runza beef on bun	9.0	199	46.4	740.80	1.86 ± .96
	creamed chipped beef/toast	21.5	79	18.4		
	other	69.5	151	35.2		

63

Table 6: Actual and intended dinner entree choices and certainty scores

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score[1] mean ± s.d.
20	pizza pattie	18.0	94	17.9		
	roast turkey	66.5	367	69.9	4.63[2]	1.64 ± .86
	other	15.5	64	12.2		
7	fried chicken	65.3	331	72.7		
	liver and onions	8.0	25	5.5	11.44[3]	1.58 ± .95
	other	26.6	99	21.8		
18	graham crackers, fruit plate	12.6	43	8.8		
	roast beef	78.9	379	77.7	20.14	1.58 ± .81
	other	8.5	66	13.5		
30	sausage patties	7.5	40	8.4		
	fried chicken	63.3	346	72.5	23.39	1.74 ± .89
	other	29.1	91	19.1		
4	baked chicken	67.2	344	75.4		
	lamb pattie	5.6	35	7.7	26.23	1.64 ± .82
	other	27.3	77	16.9		

[1]Certainty score = 1, extremely sure to 5, extremely unsure of intended choice.

[2]χ^2 values less than 5.99, nonsignificant.

[3]χ^2 values greater than 9.21, $P \leq .01$.

Table 6: (cont.)

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score mean ± s.d.
9	8 oz. sirloin steak	91.0	551	97.3		
	egg, tomato, cheese, turkey, ham plate	7.5	10	1.8	28.75	1.35 ± .83
	other	1.5	5	.9		
21	8 oz. sirloin steak	65.0	431	77.6		
	barbequed spare ribs	30.5	107	19.3	39.14	1.49 ± .86
	other	4.5	17	3.1		
10	fish and chips	37.5	126	58.0		
	chicken pot pie	35.0	65	30.0	45.05	1.76 ± .85
	other	27.5	26	12.0		
31	hamburger steak	49.2	374	74.8		
	chicken salad	28.6	78	15.6	70.80	1.78 ± .86
	other	22.1	48	9.6		
1	fried perch	28.9	145	54.1		
	meat balls	26.9	41	15.3	83.54	1.93 ± .80
	other	44.2	82	30.6		
26	meat loaf	36.7	274	55.6		
	roast pork	38.2	168	34.1	92.83	1.80 ± .85
	other	25.1	51	10.3		
39	roast beef	63.5	382	83.4		
	chef's salad	29.5	41	9.0	94.40	1.63 ± .84
	other	7.0	35	7.6		

Table 6: (cont.)

item no.	selection	intended choice %	actual choice f	actual choice %	χ^2	choice certainty score mean	s.d.
16	batter-dipped fish	28.3	138	58.4	109.76	1.88 ±	1.04
	stuffed green peppers	26.8	49	20.8			
	other	44.9	49	20.8			
25	peppered steak	25.1	62	11.7	165.67	1.86 ±	.98
	shrimp mates	47.7	401	75.7			
	other	27.1	67	12.6			
11	chicken chow mein/rice	31.2	198	39.0	175.89	1.90 ±	.99
	veal parmigiani	23.6	219	43.1			
	other	45.3	91	17.9			
6	pork cutlet	28.6	201	38.2	235.31	1.86 ±	.87
	teriyaki/rice	23.1	237	45.1			
	other	48.3	88	16.7			
19	pollock fish square	12.1	141	28.0	257.57	1.76 ±	.87
	burritos with chili sauce	43.4	304	60.1			
	other	44.4	60	11.9			
28	veal cutlet	25.1	234	55.2	275.40	1.90 ±	.91
	polish sausage	19.1	114	26.9			
	other	55.8	76	17.9			
24	pollock fish square	14.1	152	50.6	336.61	1.85 ±	.90
	dinner frankfurters	27.6	65	21.7			
	other	58.3	83	27.7			

Comparison of Actual and Intended Selection Data

Actual selection data, intended selection data, chi-square values, and mean certainty scores are listed in Tables 5 and 6 in increasing order of chi-square values. Chi-square values were obtained by using chi-square tests of goodness of fit to determine if the actual frequency of selection differed significantly from the intended frequency of selection (84). For luncheon entrees in twelve instances the item actually selected by the most students was also the item intended for selection by the most percentage of students. The same held true for eleven dinner entree choices. In five instances for both luncheon and dinner entrees the item with the highest percentage of actual selection had been intended as a choice by the fewest percentage of respondents.

In all but two luncheon and one dinner choices the chi-square values indicated the percentages of intended and actual selections were significantly different. This could be attributed to the additional other category of alternates. Choices where actual and intended behavior did not agree on the most frequently chosen item or alternate were: pizza sandwich vs. chicken tetrazzini, chili macaroni vs. egg salad, wieners vs. spanish noodles, pizza hotdish vs. reuben sandwich, fish stick sandwich vs. beef macaroni casserole, runza beef on bun vs. creamed chipped beef/toast, pork cutlet vs. teriyaki/rice, chicken chow mein vs. veal parmigiani, pollock fish square vs. burritos with chili sauce, pollock fish square vs. dinner frankfurters, fried perch vs. meat balls, meat loaf vs. roast pork, veal cutlet vs. polish sausage.

Spearman's rank order correlation coefficient (84) was computed between the chi-square value and the overall certainty score (Table 7).

The coefficient was .38 for luncheon data and .69 for dinner data. The coefficient was positive indicating higher certainty scores were related to higher chi-square values. Higher certainty scores depict decisions with less certainty about an intended choice. As found in Johnson and Vaden's study (5), students with greater uncertainty about their intended choice also showed uncertainty in actual behavior. The coefficient for luncheon and dinner data together was .48 also indicating a positive relationship.

Table 7: Mean χ^2 values, mean certainty scores, and Spearman correlation coefficients

	χ^2	certainty score	Spearman correlation coefficient[1]
	mean	mean	
all meals	108.33	1.77	.48
lunch	106.41	1.78	.38
dinner	110.34	1.73	.69

[1]Correlation between ranks of χ^2 values and certainty scores.

SUMMARY AND CONCLUSIONS

Accurate food production forecasting has become necessary as a means to control costs effectively in a foodservice operation. Consumer demand has been measured to aid in management's cost control. The purpose of this research was to compare students' intended entree selections from residence hall foodservice menus with actual choices from the serving line. This study was an extension of the research of forecasting production demand by Shriwise (10), college students' entree choices by Johnson and Vaden (5), and high school students' stated entree decisions by Gargano and Vaden (30). This study, unlike Johnson's (5) and Gargano's (30) research, measured intended and actual selections of alternate items (assorted cold cuts, eggs, and cheese, yogurt, peanut butter, and soup) offered in addition to planned entrees.

Specific objectives included studying entree preferences, studying intended selections with degree of certainty, comparing actual choices with intended ones, and assessing usefulness of intended entree selections as a production forecasting tool. Actual choice data for entree items were collected over a four-week period excluding weekends.

The number of portions for each entree item or alternate were tabulated on a key tabulator and recorded on a specific form. Data were compared with results of a survey of intended entree selections of a 30 per cent random sample of residence hall women at a large university in Kansas. The survey instrument consisted of a listing of thirty-nine pairs of preplanned luncheon and dinner entree choices and alternates from four weeks of residence hall menus used in collecting actual choice data

and of a listing of menu items for hedonic description. Participants were
asked to indicate which item they would select from each set of entrees
and alternates, their degree of certainty for each choice, and their
degree of like or dislike (hedonic rating) for each entree item. The
hedonic rating included a five-point scale instead of the three-point
scale like Gargano's and Johnson's. An instrument was distributed to
each student participant. Two hundred women completed the survey.

Sack lunch attendance was lower on Tuesday and Thursday while regular
lunch attendance was higher on these two days than on Monday, Wednesday,
and Friday. Friday dinner attendance always was the lowest during the
week.

Items well liked included roast beef, steak, barbequed spare ribs,
chef's salad, bacon-lettuce-tomato sandwich, hot roast beef sandwich,
assorted cold cuts-eggs-cheese, and chicken noodle soup. The mean prefer-
ence rating values indicate entrees in the beef steak or cutlet, ground
beef, and pork categories had neutral values (neither like nor dislike),
except for a few items, steak, roast pork, and spare ribs, which had
higher like values. Items in the roast beef, fried or roast poultry,
cold sandwich, hamburger sandwich, Italian and Mexican dishes, and
alternate categories were preferred over those of beef cutlet, ground
beef, other pork, fried fish, extended main dishes, and other main dishes.

Items liked by 40 per cent or more of the respondents included steak,
bacon-lettuce-tomato sandwich, roast beef, chicken noodle soup, roast
turkey, assorted cold cuts-eggs -cheese, tacos, barbequed spare ribs, and
fried chicken. Items disliked by 25 per cent or more of the respondents
included casseroles and extended main dishes, pork and beef cutlets, and
wieners. Many disliked items were unfamiliar to other respondents. None

of the salad plates were in the listing of menu items disliked by 25 per cent or more as they were in Johnson's study (5). Her study included both males and females, however; while this study was restricted to female college students.

Mean certainty scores reflected greater certainty for items selected by greater percentage of students in thirteen of twenty luncheon choice sets. In eight instances, more respondents selected the alternates than the paired choices, and respondents were more certain in selecting cold cuts. Mean certainty scores were similar when equally intended choice items and alternates were paired.

In most instances, respondents were moderately sure of their intended dinner entree selection. When the percentage of intended selection was larger, certainty was stronger. In seven instances, the percentage of students intending to select alternates was larger than those intending to select the planned entrees. Certainty for cold cuts and yogurt was equal to or lower than certainty for paired choices in nine and thirteen instances respectively. Certainty scores were similar when intended choices were equal in percentage selections.

For luncheon items, in twelve instances the item actually selected by the most students was also the item intended for selection by more respondents; for dinner items, this occurred eleven times. In all instances, except two luncheons and one dinner, the chi-square values indicated the distribution of actual selections differed from that of the intended selections. This could be attributed to the additional other category of alternates. In sixteen instances, both luncheon and dinner, actual and intended selection behavior did not agree on the most frequently chosen item or alternate. When chi-square values of the actual and intended

selections were compared with overall certainty scores for each choice there was a positive relationship between the statistics (overall: $r = .48$); for luncheon choices, the correlation was .38; for dinner, .69. A positive coefficient indicates higher certainty scores were associated with higher chi-square values indicating less certainty about an intended choice and greater disparity between intended and actual choices. Chi-square values showed that greater disparity existed between intended and actual selection than in the research by Johnson and Vaden and by Gargano and Vaden.

Spearman's coefficient was higher in this study than that reported in Johnson's study of $r = .20$ (5). This indicates that the measurement of chi-square against certainty scores was more closely related in this study. Perhaps measurement of the additional alternates and use of the five-point rather than a three-point certainty scale offered more precise assessments. The five-point scale (from "like a lot" to "dislike a lot") also offered a more accurate description of likes and dislikes of the food items. Results of this study and the Johnson and Vaden study may differ because of differences in the samples. Their study included both male and female students, while this study included females only.

Many factors including choices available on a selective menu must affect entree item choices. Other factors which might be studied to predict food consumption are ethnic background, cafeteria environment, and disposable income. Further studies might revolve around comparing item frequency of serving to actual behavior.

From this study, one can conclude that intended choices are indicators of more popular food items and could be used for planning menus acceptable to students. However, intended choices are not sufficiently accurate as a predictor for production demand.

REFERENCES

(1) Time for a change (A Booklet). Grinnell, Iowa: Grinnell College, n.d.

(2) Aboul-ela, J.: Food attitudes of university women. NACUFS Journal. East Lansing, Mich.: Natl. Assoc. of College and Univ. Food Services, 1976.

(3) Barlow, A.E.: Food preferences of university students. Unpublished M.S. thesis, Kansas State Univ., 1962.

(4) Brown, E.L.: College students look at the basis for their food habits. J. Home Econ. 59: 784, 1967.

(5) Johnson, K.E. and Vaden, A.G.: Accuracy of college students' intended entree selections for forecasting production demand. J. Food Sci. 44: 257, 1979.

(6) Knickrehm, M.E., Cotner, C.G., and Kendrick, J.G.: Acceptance of menu items by college students. J. Am. Diet. Assoc. 55: 117, 1969.

(7) M.I.T.: The scientific approach to food service. Food Mgt. 6(3): 34, 1970.

(8) Nugent, M.: Help students expand food preferences. Coll. Univ. Bus. 38: 59, 1965.

(9) Schuck, C.: Food preferences of South Dakota college students. J. Am. Diet. Assoc. 39: 595, 1961.

(10) Shriwise, M.A.: Forecasting production demand in a residence hall foodservice system. Unpublished M.S. thesis, Kansas State Univ., 1975.

(11) The day the students cheered. Food Mgt. 3(11): 30, 1967.

(12) Verzosa, G.C.: Food preferences of college students. Unpublished M.S. thesis, Fresno State Univ., 1970.

(13) Warren, G.L.: Food preferences of students eating in the dining hall at Langston University. Unpublished M.S. thesis, Langston Univ., 1970.

(14) West, B.B., Wood, L., Harger, V.F., and Shugart, G.S.: Food Service in Institutions. 5th ed. New York: John Wiley and Sons, Inc., 1977.

(15) Allan, M.: Problem: How to increase participation--Solution: Special Tuesday dinners. Food Mgt. 11(2): 53, 1976.

(16) College feeders find quick way to success. Institutions/Vol. Feeding Mgt. 76(9): 97, 1975.

(17) Dining-out atmosphere at York College. Coll. Mgt. 3(12): 37, 1968.

(18) Dobie, A.R.: Rescheduling the menu at Yale. Food Mgt. 5(1): 26, 1970.

(19) Farr, T.: Why can't you serve cassoulet toulousain every night of the week? Food Mgt. 10(5): 47, 1975.

(20) Fiesta at Texas A & M. Food Mgt. 6(8): 37, 1970.

(21) University of Tennessee Foodservices Department (A Brochure). Knoxville: Univ. of Tennessee, n.d.

(22) The stance of quality: Quiet command embellishes Purdue's traditions. Institutions/Vol. Feeding Mgt. 76(9): 129, 1975.

(23) Foodservice at Pacific (A Brochure). Stockton, Calif.: Univ. of Pacific, n.d.

(24) Residence Halls Dining Service at Iowa (A Brochure). Iowa City: Univ. of Iowa, n.d.

(25) The new razzle-dazzle in campus meals. Cornell H.R.A. Quart. 17(1): 26, 1976.

(26) University of Rochester meal options spark student appetites. Institutions/Vol. Feeding Mgt. 80(1):   , 1977.

(27) Vegetarians on campus. Food Mgt. 11(4): 45, 1976.

(28) Pilgrim, F.J.: What foods do people accept or reject? J. Am. Diet. Assoc. 38: 439, 1961.

(29) Food Service Manual for Health Care Institutions. Chicago: American Hospital Association, 1972.

(30) Gargano, T.M. and Vaden, A.G.: High school students' intended and actual entree selections. School Foodservice Res. Rev. 2(2): 86, 1978.

(31) Chilson, B.D. and Knickrehm, M.E.: Students prefer a la carte system for cost, quality and flexibility. Coll. Univ. Bus. 53(3): 56, 1972.

(32) Cornell, C.D.: What can you do with old frat houses? At Davidson they became dining halls. Coll. Univ. Bus. 55(2): 40, 1973.

(33) Are Newcomb girls pampered? Food Mgt. 3(5): 33, 1967.

(34) Foodservice Brochure. Richmond, Va.: Virginia Commonwealth Univ., n.d.

(35) Food Services (A Brochure). Provo, Utah: Brigham Young Univ., n.d.

(36) At Princeton. Food Mgt. 4(11): 31, 1969.

(37) Bicentennial foodservice Harvard University. Food Mgt. 10(7): 26, 1975.

(38) Anderson, B.R.: Student committee reviews food service program. Coll. Mgt. 6(4): 9, 1971.

(39) Millron, A.I.: Birthday cakes, steaks and coupons help students enjoy board contracts. Coll. Univ. Bus. 54(5): 70, 1973.

(40) Paul Fairbrook's salad bars, health foods, and inflation specials. Food Mgt. 12(4): 42, 1977.

(41) Housing and Food Service Operations at Penn State Univ. (A Brochure). University Park: Pennsylvania State Univ., n.d.

(42) Meet Joe Blair. Food Mgt. 11(5): 37, 1976.

(43) University of South Dakota conquers leftovers. Institutions/Vol. Feeding Mgt. 80(1): 56, 1977.

(44) Dining at Dartmouth. Food Mgt. 3(2): 21, 1967.

(45) The happy meal time. Food Mgt. 4(7): 24, 1968.

(46) Kitchen of the month--Michigan State University. Food Mgt. 4(5): 22, 1968.

(47) Kitchen of the month--Southwest Texas State College. Food Mgt. 4(6): 24, 1968.

(48) Barsl, C.: Ambassador College fights inflation. Food Mgt. 9(11): 52, 1974.

(49) Smith, E.E.: A Handbook on Quantity Food Management. Minneapolis, Minn.: Burgess Publishing Company, 1955.

(50) Fowler, S.F., West, B.B., and Shugart, G.S.: Food for Fifty. 5th ed. New York: John Wiley and Sons, Inc., 1971.

(51) Recommended Dietary Allowances. 8th ed. Washington, D.C.: National Academy of Sciences, 1974.

(52) Kotschevar, L.H.: Standards, Principles and Techniques in Quantity Food Production. 3rd ed. Boston: Cahners Publishing Company, Inc., 1974.

(53) Diet and Menu Guide for Hospitals. Chicago: American Hospital Association, 1969.

(54) What students really like to eat. Coll. Univ. Bus. 38: 59, 1965.

(55) Einstein, M.A. and Hornstein, I.: Food preferences of college students and nutritional implications. J. Food Sci. 35: 429, 1970.

(56) Spangler, G.J.: Some food habits and practices of New Mexico State University students. Unpublished M.S. thesis, New Mexico State Univ., 1968.

(57) Thompson, B.L.: Food habits of college women. Unpublished M.S. thesis, Fresno State College, 1968.

(58) White, H.P.: Frequency of acceptance of menu items in university residence halls. Unpublished M.S. thesis, Oklahoma State Univ., 1971.

(59) Peryam, D.R., Polemis, B.W., Kamen, J.M., Eindhoven, J., and Pilgrim, F.J.: Food preferences of men in the U.S. Armed Forces. Chicago: Quartermaster Food and Container Inst. for the Armed Forces, 1960.

(60) Hoover, L.W.: Personal and social determinants of food preference. Unpublished M.S. thesis, Texas Tech. College, 1969.

(61) Peryam, D.R. and Gutman, N.J.: Variation in preference ratings for food served at meals. Food Technol. 12: 30, 1958.

(62) Schutz, H.G.: A food action rating scale for measuring food acceptance. J. Food Sci. 30: 365, 1965.

(63) Edwards, A.L.: Techniques of Attitude Scale Construction. New York: Appleton-Century Crofts, Inc., 1957.

(64) Pilgrim, F.J.: The components of food acceptance and their measurement. Am. J. Clin. Nutrition 5: 171, 1957.

(65) Schutz, H.G.: Preference ratings as predictors of food consumption. American Psychologist 12: 412, 1957.

(66) Schuh, D.D., Moore, A.N., and Tuthill, B.H.: Measuring food acceptability by frequency rating. J. Am. Diet. Assoc. 51: 340, 1967.

(67) Peryam, D.R. and Pilgrim, F.J.: Hedonic scale method of measuring food preferences. Food Technol. 1: 9, 1957.

(68) Eindhoven, J. and Peryam, D.R.: Measurement of preferences for food combinations. Food Technol. 13: 379, 1959.

(69) Carruth, B.R. and Anderson, H.L.: Scaling criteria in developing and evaluating an attitude instrument. J. Am. Diet. Assoc. 70(1): 42, 1977.

(70) Pilgrim, F.J. and Wood, K.R.: Comparative sensitivity of rating scale and paired comparison methods for measuring consumer preference. Food Technol. 9: 385, 1955.

(71) Crespi, I.: Attitude Research. Chicago: American Marketing Assoc., 1965.

(72) Hansen, F.: Consumer Choice Behavior. New York: The Free Press, 1972.

(73) Juster, F.T.: Consumer buying intentions and purchase probability. New York: National Bureau of Economic Research, 1966.

(74) Markin, R.J., Jr.: Consumer Behavior. New York: MacMillan Publishing Co., Inc., 1974.

(75) Solomon, H.: Mathematical Thinking in the Measurement of Behavior. Glencoe, Ill.: The Free Press, 1960.

(76) Walters, C.G.: Consumer Behavior, Theory and Practice. Homewood, Ill.: Richard D. Irwin, Inc., 1974.

(77) Block, C.E. and Roering, K.J.: Essentials of Consumer Behavior. Hinsdale, Ill.: The Dryden Press, 1976.

(78) Lancaster, K.: Consumer Demand. New York: Columbia University Press, 1971.

(79) Schmitz, H.H.: The menu count. Hospitals 44(4): 94, 1970.

(80) Uhrich, R.V. and Noort, A.J.: Production demand forecasting. Hospitals 45(3): 106, 1971.

(81) Magee, J.F.: Production Planning and Inventory Control. New York: McGraw-Hill, 1958.

(82) Konnersman, P.M.: Forecasting production demand in the dietary department. Hospitals 43(18): 85, 1969.

(83) McManis, H.: Forecasting for a college residence hall. Unpublished paper, Kansas State University, 1973.

(84) Roscoe, J.T.: Fundamental Research Statistics for the Behavioral Sciences. 1st ed. New York: Holt, Rinehart and Winston, Inc., 1969.

APPENDIXES

APPENDIX A

Residence Hall Menus

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
9/26 M	L	Hot Roast Beef Sandwich Egg, Pickle, Ham, Cheese, Tomato Plate	Mashed	Creole Soup Vegetable	Lettuce, Celery, Carrots, Cheese, Croutons Cottage Cheese Carrifruit Salad Lime Gelatin/ Diced Pears		Baked Custard Sliced Peaches Peanut Butter Bar Ice Cream
	D	Pizza Pattie Roast Turkey with Bread Dressing	Mashed	Buttered Spinach Carrots	Rice/Vegetable Salad Pink Pastel Gelatin Cottage Cheese Lettuce with Trimmings	Hot Bread	Cherry Shortcake Frosted Gelatin Cubes Ice Cream Fruit
9/27 Tu	L	Runza Beef on Bun Creamed Chipped Beef/Toast	Potato Chips	Chicken Noodle Soup Vegetable	Lettuce, Diced Beets, Fresh Spinach, Croutons Orange-Lemon Ribbon Gelatin Cottage Cheese		Butterscotch Pudding Pear Half Angel Krisp Cookies Ice Cream
	D	Meat Loaf Roast Pork	Parsley Buttered	Green Beans Tomatoes	Tossed Green Salad Corn Relish Cottage Cheese Strawberry Gelatin Cucumber/Onions/ Vinegar	Hot Rolls	Peach Cobbler Ice Cream Fruit Pudding

Cold cuts, yogurt, and peanut butter are provided as alternates to the main choices, or entrees.

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
W	L	Smoked Turkey Ham Sandwich Texas Straw Hat	Potato Chips	Cream of Potato Soup Vegetable	Tossed Salad with Chopped Tomatoes, Red Onion Rings, Chopped Cucumbers, Bac-O-Bits Cottage Cheese Gelatin Cubes		Brown Sugar Dutch Cookies Fruit Cup with Bananas Chocolate Pudding Ice Cream
9/28	D	Grilled Top Sirloin Steak Egg, Tomato, Cheese, Turkey, Ham Plate	Baked	Buttered Corn 7-Minute Cabbage	Tossed Green Salad Kidney Bean Salad Cherry Gelatin/ Marshmallows Cottage Cheese Gelatin Cubes/ Topping	Hot Rolls	Watermelon Candy Stripe Gelatin Yellow Cake with Chocolate Sauce Ice Cream
Th	L	Hoagies Chicken Rice Casserole		Beef Noodle Soup Vegetable	Tossed Salad, Grated Carrots, Diced Celery, Spinach, Croutons Cottage Cheese Raspberry Apple- sauce Gelatin		Butterscotch Bar Cookie Vanilla Pudding Apricot Halves Fruit Ice Cream
9/29	D	Veal Cutlet Polish Sausage	Parsley Buttered	Buttered Peas with Celery Cauliflower with Cheese	Three Bean Salad Orange Pastel Gelatin Cottage Cheese Canned Tomatoes Tossed Salad	Hot Rolls	Lemon Meringue Pie Fruit Applesauce Ice Cream

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
Fr	L	Hamburgers on Bun Baked Cheese Sandwich	Potato Salad	Chicken Rice Soup Vegetable	Lettuce, Sliced Radishes, Red Cabbage, Green Onions Cottage Cheese Lemon Gelatin/ Mandarin Oranges		Tapioca Pudding Applesauce Orange Cookies Ice Cream
9/30	D	Fish and Chips Chicken Pot Pie	French Fries	Mixed Vegetables Broccoli Cuts	Tossed Green Salad Red and Pink Ribbon Salad Mold Fiesta Cole Slaw Cottage Cheese		Black and White Pudding Fudge Cake/Fudge Icing Ice Cream Sliced Peaches Fruit
M	L	Hamburgers on Bun Pimiento Cheese, Fruit Plate	Potato Chips	Beef Vegetable Soup Buttered Corn	Lettuce, Chopped Green Onions, Cucumbers, Shredded Carrots Cottage Cheese Lime Gelatin/Fruit Cocktail		Chocolate Chip Bars Tapioca Pudding Sliced Peaches Ice Cream
10/3	D	Teriyaki/Rice Pork Cutlet	Buttered Potatoes	Buttered Peas Okra and Tomatoes	Tossed Green Salad Cottage Cheese Pink Pastel Gelatin Corn Relish Sweet Sour Beets		Chocolate Cake Roll Ice Cream Fresh Fruit Gelatin Cubes

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
Tu	L	Rachel Sandwich Beef Noodle Casserole	Potato Chips	Chicken Vegetable Soup Vegetable	Lettuce, Chopped Green Onions, Kidney Beans, Diced Celery Cottage Cheese Red and Pink Ribbon Mold		Chocolate Pudding Peanut Butter Cookies Pear Half Ice Cream
10/4	D	Pollock Fish Square Burritos with Chili Sauce	Hash Browns	Succotash Buttered Spinach	Tossed Green Salad Lemon Gelatin/ Mandarin Oranges Cottage Cheese Applesauce	Hot Rolls	Cherry Pie Pudding Parfait Ice Cream Fruit
W	L	Sloppy Joe Sandwich Ham and Beans	Potato Chips	Chicken Rice Soup Buttered Spinach	Lettuce, Spinach, Red Cabbage, Shredded Carrots Cottage Cheese Orange Gelatin/ Sliced Peaches Garbonzo Bean Salad	Cornbread	Baked Custard Ranger Cookies Fruit Ice Cream
10/5	D	Sausage Patties/ Fried Apples Fried Chicken	Mashed with Gravy	Broccoli Cuts Wax Beans	Tossed Lettuce Cucumbers, Onions with Sour Cream Cottage Cheese Macaroni Salad Strawberry Gelatin/Straw- berries	Hot Bread	White Cake/Coconut Icing Lemon Bisque Ice Cream Fresh Fruit

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
Th	L	Canadian Bacon Sandwich Macaroni and Cheese		Corn Chowder Soup Vegetable	Lettuce, Green Onions, Cucumbers, Green Peppers, Cauliflower Cole Slaw Cottage Cheese Cherry Gelatin/ Marshmallows		Carrot Cookies Vanilla Pudding Apricot Halves Ice Cream
10/6	D	Roast Beef Chef's Salad	Mashed with Gravy	Buttered Corn Zucchini Squash	Tossed Green Salad Three Bean Salad Cottage Cheese Lime Pastel Gelatin	Hot Rolls	Fresh Fruit Boston Creme Pie Gelatin Cubes Ice Cream
	L	Egg Salad on Bun Chili Macaroni Casserole	Potato Chips	Tomato Soup Vegetable	Lettuce, Spinach, Carrots, Cucumbers Cottage Cheese Raspberry Gelatin/ Diced Pear		Glazed Doughnuts Butterscotch Pudding Ice Cream Fruit
Fr 10/7	D	Batter-dipped Fish Stuffed Green Peppers	Creamed	French Cut Green Beans Cauliflower	Tossed Green Salad Kidney Bean Salad Cottage Cheese Orange-Lemon Gelatin Marinated Vegetables		Brownies Ice Cream Fruit Gelatin Cubes

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
M	L	Pizza Sandwich Chicken Tetrazzini		Bean Soup Vegetable	Lettuce, Grated Carrots, Green Onions, Spinach Cole Slaw Macaroni Salad Cherry Gelatin/ Sliced Peaches		Baked Bread Custard Fruit Cocktail Sugar Cookies Ice Cream
10/10	D	Pot Roast of Beef Graham Crackers, Fruit Plate	Potatoes with Broth	Carrots in Broth Celery in Broth Onions in Broth	Tossed Salad, Bac-O-Bits, Grated Carrots, Green Peppers Cottage Cheese Lime Gelatin/Banana/Diced Apples Three Bean Salad		Warm Gingerbread/ Vanilla Sauce Frosted Gelatin Cubes Fruit Ice Cream
Tu	L	Fish Stick Sandwich Beef Macaroni Casserole	Potato Chips	Beef Vegetable Soup Vegetable	Lettuce, Celery, Green Peppers Cottage Cheese Orange Gelatin/ Grapes		Lemon Pudding Oatmeal Crispy Cookies Fruit Ice Cream
10/11	D	Shrimp Mates Peppered Steak	Rice or Potato Rounds	Green Beans Cauliflower	Tossed Salad Lemon Pastel Gelatin Cucumber, Onion Rings		Pumpkin Pie Fruit Ice Cream Sliced Peaches

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
W	L	Bacon, Lettuce, Tomato Sandwich Corned Beef Casserole		Chicken Noodle Soup Vegetable	Lettuce, Cucumbers, Red Cabbage, Carrots, Endive, Croutons Cottage Cheese Garbonza Bean Salad		Chocolate Pudding Pear Half Ice Cream Applesauce Bars
10/12	D	Baked Chicken Lamb Pattie	Mashed with Gravy	Buttered Corn Zucchini Squash	Tossed Salad Sweet Sour Beets Red and Pink Salad Mold Marinated Vegetables Green and White Layered Mold	Hot Rolls	Peach Shortcake Jello Cubes Ice Cream Fruit
	L	Broiled Bologna and Cheese Sandwich Spanish Rice	Potato Chips	Minestrone Soup	Lettuce, Cucumbers, Red Cabbage Cottage Cheese Orange and Lemon Layered Gelatin		Applesauce Bar Vanilla Pudding Ice Cream Fruit
Th 10/13	D	Hamburger Steak Chicken Salad	French Fries	Buttered Peas Carrots	Tossed Green Salad Cottage Cheese Raspberry Gelatin/ Diced Pears Corn Relish		Coconut Pie Fruit Gelatin Cubes Ice Cream

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
Fr	L	Tacos Tuna Noodle Casserole	Potato Chips	Potato Soup Vegetable	Tossed Salad, Spinach, Cucumbers, Shredded Carrots Cottage Cheese Raspberry Gelatin/ Diced Pears		Tapioca Pudding Hermit Cookies Applesauce Ice Cream Fresh Fruit
10/14	D	Pollock Fish Square Dinner Frankfurters	Potato Rounds	Mixed Vegetables Spinach	Tossed Green Salad Rice/Vegetable Salad Cottage Cheese Pink Pastel Gelatin Gelatin Cubes/Bananas in Topping	Hot Rolls	Fresh Fruit Chocolate Cake Canned Plums
M	L	Hamburgers on Buns Deviled Egg and Cheese Plate	Potato Salad	Minestrone Soup Vegetable	Tossed Green Salad, Chopped Green Onions, Chopped Cucumbers Cole Slaw Cherry Gelatin/ Cherries		Baked Custard Sliced Peaches Lemon Cookies Ice Cream
10/17	D	Veal Parmigiani Chicken Chow Mein/Rice	Rice or Rissole Potatoes	Carrots Brussel Sprouts	Cottage Cheese Kidney Bean Salad Applesauce Lemon Gelatin/ Mandarin Oranges	Hot Rolls	Applesauce Cake Fresh Fruit Gelatin Cubes Ice Cream

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
Tu 10/18	L	Wieners/Buns Spanish Noodles		French Onion Soup Buttered Spinach	Tossed Green Salad Diced Cucumbers, Chopped Fresh Spinach Sweet Sour Beets Raspberry Gelatin/ Marshmallows Cottage Cheese		Oatmeal Raisin Cookies Pear Half Ice Cream Vanilla Pudding
	D	Dinner menu not used in analysis					
W 10/19	L	Mini Submarine Creamed Chipped Beef/Toast	Potato Chips	Cream of Potato Soup Vegetable	Tossed Green Salad, Grated Carrots, Diced Celery Cottage Cheese Pink Pastel Gelatin Macaroni Salad		Vanilla Pudding Peanut Butter Bars Apricot Halves Ice Cream
	D	8 oz. Sirloin Steak Barbequed Spare Ribs	Baked	Buttered Broccoli Cuts Acorn Squash	Tossed Green Salad Corn Relish Gelatin Salad Cottage Cheese	Hot Rolls	Clabber Cake Gelatin Cubes Ice Cream Fruit

KANSAS UNIVERSITY RESIDENCE HALL FOODSERVICE MENU

Date		Entree	Potato or Sub	Vegetable or Soup	Salad Bar	Bread	Dessert
Th	L	Reuben Sandwich Pizza Hotdish	Potato Chips	Beef Vegetable Soup Vegetable	Lettuce, Green Onions, Grated Carrots Lime Pastel Gelatin Cottage Cheese		Snickerdoodle Cookies Pineapple Slice Chocolate Pudding Ice Cream
10/20	D	Fried Chicken Liver and Onions	Mashed with Gravy	Broccoli Cuts Vegetable	Cranberry Fluff Salad Bean Salad Cottage Cheese Strawberry Gelatin/ Diced Pears Cold Tomatoes	Hot Rolls	Pineapple Upside Down Cake/ Pineapple Sauce Ice Cream Fruit
	L	Grilled Cheese Sandwich Chili	Potato Chips	Chicken Noodle Soup Vegetable	Tossed Salad, Cabbage, Endive, Shredded Carrots Cole Slaw Strawberry Gelatin/ Bananas Cottage Cheese		Coconut Pudding Date Nut Cookies Fruit Ice Cream
Fr 10/21	D	Fried Perch Meat Balls	Creamed	Buttered Corn 7-Minute Cabbage	Tossed Green Salad Marinated Carrots Orange Marshmallow Melba Cottage Cheese		Bavarian Cream Fresh Fruit Peach Cobbler

APPENDIX B

Correspondence

THE UNIVERSITY OF KANSAS/LAWRENCE, KANSAS 66045

Housing Department
205 McCollum Hall
1800 Engel Road
913-864-4560

March 31, 1977

To: Pam Horne
      Residence Hall Director
      Gertrude S. Pearson Hall

From: Cheryl Wiley
      Graduate Student in Institutional Management

      Allene Vaden
      Asst. Professor in Institutional Management
      Kansas State University

The Department of Housing and Food Service at Kansas University is planning a project in which student participation in the residence hall foodservice will be studied. The results will be utilized to predict students' entree selections.

As a phase of this project, we are planning to conduct a survey by interviewing twenty percent of the students living in the two residence halls served by the foodservice division in Gertrude S. Pearson Hall. These interviews will focus on students' likes and dislikes of entrees served and on students' decisions concerning entree choice. We plan to employ students from the residence halls to distribute the questionnaires. A two-week pilot study will be conducted this spring with twenty-five students to develop the data collection techniques. The final study will begin in the fall semester of 1977.

The phase relating to actual entree selection from the cafeteria line has been approved by the Department of Food Service. Lenoir Ekdahl, Director of Housing Food Service, believes the results of this study will be beneficial to the Gertrude S. Pearson foodservice division. The approval of the Hall Governing Board and others is desired. We would appreciate your efforts to obtain this approval. If you have any questions concerning this project, please contact the foodservice division supervisor of Gertrude S. Pearson Hall.

Could we check with you by April 6--we hope to conduct the pilot study in April or early in May.

THE UNIVERSITY OF KANSAS / LAWRENCE, KANSAS 66045

Housing Department
205 McCollum Hall
1800 Engel Road
913-864-4560

September 12, 1977

To: Pam Horne
        Residence Hall Director
        Gertrude S. Pearson Hall

From: Cheryl Wiley
        Food Service Supervisor II
        Gertrude S. Pearson Dining Hall

The Department of Housing and Foodservice is planning the final phases of the research project begun last spring in the residence hall foodservice division at Gertrude S. Pearson Dining Hall. The results will be utilized to predict student's entree selections.

As a phase of this project, we are planning to conduct a survey by distributing questionnaires to thirty percent of the students living in the two residence halls served by the foodservice division in Gertrude S. Pearson Hall. This survey will focus on student's likes and dislikes of entrees served and on student's decisions and certainty of decision concerning entree choice. We plan to employ students from the residence halls to distribute the questionnaires. All material will be numbered for accuracy in return of questionnaire and will be distributed in late October and early November and again in February/March.

The phase relating to actual entree selections from the cafeteria line will be conducted prior to the distribution of the questionnaires. This phase has been approved by the Department of Housing via Lenoir Ekdahl. The approval of all concerned is desired. We appreciate your efforts in obtaining this approval and in cooperating in the study. If you have any questions concerning this project, please contact me at Gertrude S. Pearson Hall (Telephone: 864-3120).

Thank you.

APPENDIX C

Instructions for Serving Line Personnel

April 6, 1977

To: Student Line Workers and
       employees of Gertrude S. Pearson
       Dining Hall

From: Cheryl Wiley
       Graduate Student of Institutional Management

       Lenoir Ekdahl
       Director of K.U. Housing Foodservice

The Department of Foodservice will be conducting a pilot study for a research project beginning Monday, April 11, 1977. This phase of the study consists of recording the main dish or alternate choices served. All employees, student and regular, must be aware of the recording procedures for number of actual initial servings and seconds served. Because this is a research project, accuracy is _very_ important. The pilot study will continue through Saturday, April 23.

The counters will be labeled 0, 1, 2, 3, 4, 5, 6, 7, 8 to correspond to: 0 = no entree taken; 1 = the entree placed first on the serving line; 2 = the entree placed second on the serving line; 3 = the entree placed third on the serving line (if there is one); 4 = entrees served together in half portions; 5 = the alternate of soup (if no entree is taken); 6 = the alternate of cold cuts (meat, cheese, or eggs); 7 = the alternate of yogurt; 8 = the alternate of peanut butter. A list of the choices for seconds will be placed on a clipboard at the line. To standardize the procedure of using the counters, please strike the counter key corresponding to the main dish or alternate to be served to a student _before_ serving the portion or tally a mark in the blank corresponding to the category for the second portions. There will be a clipboard where you will record the final count on each one of your counters after each meal. If you have any questions, please ask a supervisor for assistance.

Thank you for your help and cooperation.

APPENDIX D

Menu Item Census Form

DATE _____ DAY _____

LUNCH: ENTREE   FINAL COUNT   FINAL COUNT   CHECKER'S

           ITEMS   (first servings)   (seconds)   COUNT

     _____   _____   _____   RESIDENTS ____

     _____   _____   _____   EMPLOYEES ____

     _____   _____   _____   GUESTS   ____

     _____   _____   _____   SACK LUNCHES ____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

DINNER: ENTREE   FINAL COUNT   FINAL COUNT   CHECKER'S

           ITEMS   (first servings)   (seconds)   COUNT

     _____   _____   _____   RESIDENTS ____

     _____   _____   _____   EMPLOYEES ____

     _____   _____   _____   GUESTS   ____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

     _____   _____   _____

APPENDIX E

Excerpts from Pretest Instrument

THE UNIVERSITY OF KANSAS / LAWRENCE, KANSAS 66045

Housing Department
205 McCollum Hall
1800 Engel Road
913-864-4560

ENTREE SELECTION

Introduction

The Department of Housing and Food Service at Kansas University is working on a research project concerning prediction of amounts of food to prepare in a food service department. This project is being conducted in the Gertrude S. Pearson Dining Hall.

We need your help with the initial pilot study for this project. The most important factor to consider in a study like this is the student--what foods do students prefer? What do they select when given a choice? This is what we want you to tell us. You are among a group of hall residents that have been randomly selected to participate in this pilot study.

We are asking twenty-five Gertrude S. Pearson and Corbin residents to answer the questionnaire. Please answer every question so that the information will be complete.

Part I

Part I consists of twenty-four choices of main dishes. This questionnaire is a list of main dishes that might be served in the Kansas University residence hall dining rooms. We want you to answer 1 of 2 questions for each choice:

1) Which would you select if offered a choice of main dishes?

or 2) Which alternate would you select if not choosing a main dish?

In answering the questions please indicate which one of the main dishes in each pair you would select if offered each choice. Or, please indicate if you would choose one of the alternate items offered daily instead of the main dish (for example, cold cuts, soup, etc.).

On the next page you will find an example to assist you in completing Part I.

Example:

Luncheon Choices	Dinner Choices

Check the item you would choose for lunch. Or check the alternate you would choose.

Check the item you would choose for dinner. Or check the alternate you would choose.

---

1. ___ Macaroni and Cheese

   ___ Barbecue Beef on Bun

Alternates:

   ___ Soup

   _X_ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

2. _X_ Baked Chicken

   ___ Liver and Onions

Alternates:

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Explanation: In the above example this student selected cold cuts instead of one of the planned main dishes. Soup was not checked because it was not the choice.

Explanation: In the above example this student selected baked chicken instead of liver or an alternate item.

Part II

Part II of this study consists of describing your preference for all of the choices in Part I. Instructions will be provided as you finish Part I.

THANKS FOR YOUR HELP

Part I

Luncheon Choices:	Dinner Choices:

Choice #1

1. ___ Canadian Bacon, Lettuce, Tomato Sandwich on Bun

   ___ Chili Macaroni Casserole

Alternates:

   ___ Soup

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Choice #1

1. ___ Pot Roast of Beef

   ___ Tuna Salad Bowl

Alternates:

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Choice #2

2. ___ Hamburgers

   ___ Ham and Cheese Plate (2 rolls ham, wedge Longhorn cheese, 1/2 deviled egg, tomato wedge)

Alternates:

   ___ Soup

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Choice #2

2. ___ Fried Chicken

   ___ Ham

Alternates:

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Choice #3

3. ___ Hoagies/Hot Dog Buns

   ___ Chicken and Noodle Casserole

Alternates:

   ___ Soup

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Choice #3

3. ___ Baked Fish

   ___ Pork Chops

Alternates:

   ___ Assorted Cold Cuts, Eggs, and Cheese

   ___ Yogurt

   ___ Peanut Butter

Part II

In Part II we want to know how well you like various main dishes and alternate choices. Please mark each of the main dishes and alternates listed in the following manner. Circle 1, 2, 3, 4, or 5 to indicate your liking or disliking of these main dishes and alternate choices. Below is an example to assist you in completing Part II.

Example:

Choice	Circle 1, 2, 3, 4, or 5				
	Like a lot 1	Will eat 2	Have not eaten 3	Do not like 4	Dislike a lot 5
Bacon, Lettuce, Tomato Sandwich	①	2	3	4	5
Chicken Chow Mein/Chinese Noodles	1	2	3	④	5

Explanation: 1 means you like bacon, lettuce, tomato sandwiches a lot. 4 means you do not like chicken chow mein/chinese noodles.

Choice	Circle 1, 2, 3, 4, or 5				
	Like a lot 1	Will eat 2	Have not eaten 3	Do not like 4	Dislike a lot 5
Canadian Bacon, Lettuce, Tomato/Bun	1	2	3	4	5
Chili Macaroni Casserole	1	2	3	4	5
Hamburgers	1	2	3	4	5
Ham and Cheese Plate (Ham, cheese, deviled egg, tomato)	1	2	3	4	5
Hoagies/Hot Dog Buns	1	2	3	4	5
Chicken and Noodle Casserole	1	2	3	4	5
Wieners/Buns	1	2	3	4	5
Creamed Chipped Beef/Cornbread	1	2	3	4	5
Egg Salad	1	2	3	4	5
Holiday Spaghetti	1	2	3	4	5
Ham and Eggs	1	2	3	4	5
Beef Fritters	1	2	3	4	5

APPENDIX F

Final Research Instrument

THE UNIVERSITY OF KANSAS / LAWRENCE, KANSAS 66045

Housing Department
205 McCollum Hall
1800 Engel Road
913-864-4560

FORECASTING ENTREE PRODUCTION BY COMPARISON OF ACTUAL ENTREE

AND STATED ENTREE SELECTION

Instructions: Please complete this questionnaire.
Return to a box drop at either cafeteria
serving line. Please complete all
information asked for.

Introduction

The Department of Housing and Foodservice at Kansas University is working on a research project concerning prediction of amounts of food to prepare in a foodservice department. This project is being conducted in the Gertrude S. Pearson Dining Hall.

We need your help with this project. The most important factor to consider in a study like this is the student--what foods do students prefer? What do they select when given a choice? This is what we want you to tell us. You are among a group of hall residents that have been randomly selected to participate in this study.

Please answer every question so that the information will be complete.

Part I

Part I consists of thirty-nine choices of main dishes. This questionnaire is a list of main dishes that might be served in the Kansas University residence hall dining rooms. We want you to answer 2 questions for each choice:

　　　1) Which would you select if offered a choice of main dishes or which alternate would you select if not choosing one of the two main dishes?

　　　　　2) How sure are you of your choice?
　　　　　　　(Circle 1, 2, 3, 4, or 5)
　　　　　　　　　1 = extremely sure
　　　　　　　　　2 = moderately sure
　　　　　　　　　3 = undecided
　　　　　　　　　4 = moderately unsure
　　　　　　　　　5 = extremely unsure

The following is an example to assist you in completing Part I.

Example:

Check the item you would choose. Or check the alternate you would choose.	How sure are you? (Circle) 1 = extremely sure 2 = moderately sure 3 = undecided 4 = moderately unsure 5 = extremely unsure

Check one:	Check one:
Choice #1 1. ___Macaroni and Cheese ___Barbequed Beef on Bun Alternates: ___Soup _X_Assorted Cold Cuts, Eggs, and Cheese ___Yogurt ___Peanut Butter How sure are you? Circle: 1 ② 3 4 5	**Choice #2** 2. _X_Baked Chicken ___Liver and Onions Alternates: ___Assorted Cold Cuts, Eggs, and Cheese ___Yogurt ___Peanut Butter How sure are you? Circle: ① 2 3 4 5
Explanation: In the above example this student selected cold cuts instead of one of the planned main dishes. Soup was not checked because it was not the choice. The student was moderately sure of this choice.	Explanation: In the above example this student selected baked chicken instead of liver and onions or an alternate item. The student was extremely sure of this choice.

<u>Choice</u>

       Check the item you would choose.
<u>Or</u> check the alternate you would choose.

How <u>sure</u> are you? (Circle)
1 = extremely sure
2 = moderately sure
3 = undecided
4 = moderately unsure
5 = extremely unsure

Check one:

Choice #1
1. ___Fried Perch (fried breaded fish)

   ___Meat Balls (ground beef, seasonings)

Alternates:

   ___Assorted Cold Cuts, Eggs,
     and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #2
2. ___Hamburgers

   ___Baked Cheese Sandwich (egg,
     milk, bread, and cheese
     custard)

Alternates:

   ___Chicken Rice Soup

   ___Assorted Cold Cuts, Eggs,
     and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #3
3. ___Hamburgers

   ___Salad Plate (Pimiento cheese sand-
     wiches, grapefruit slices, orange
     slices, pineapple slices, pear
     half, green pepper strips)

Alternates:

   ___Beef Vegetable Soup

   ___Assorted Cold Cuts, Eggs,
     and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #4
4. ___Baked Chicken

   ___Lamb Pattie

Alternates:

   ___Assorted Cold Cuts, Eggs,
     and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #5
5. ___Pizza Sandwich (ground beef,
     tomato sauce, seasonings)

   ___Chicken Tetrazinni (chicken slices,
     white sauce, spaghetti in casserole)

Alternates:

   ___Bean Soup

   ___Assorted Cold Cuts, Eggs,
     and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #6
6. ___Pork Cutlet

   ___Teriyaki/Rice (beef cubes,
     gravy, soysauce on rice)

Alternates:

   ___Assorted Cold Cuts, Eggs,
     and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

<u>Choice</u>   How <u>sure</u> are you? (Circle)

         Check the item you would choose.

<u>Or</u> check the alternate you would choose.

	How sure are you? (Circle)
	1 = extremely sure
	2 = moderately sure
	3 = undecided
	4 = moderately unsure
	5 = extremely unsure

Check one:

Choice #7

7. ___Fried Chicken

   ___Liver and Onions

Alternates:

   ___Assorted Cold Cuts, Eggs,
       and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #8

8. ___Spanish Rice (rice, onions,
        green pepper, ground meat
        in tomato sauce)

   ___Broiled Bologna and Cheese
       Sandwich

Alternates:

   ___Minestrone Soup

   ___Assorted Cold Cuts, Eggs,
       and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #9

9. ___8 oz. Sirloin Steak

   ___Salad Plate (sliced egg, tomato
       wedges, American cheese, sliced
       turkey, sliced ham on lettuce)

Alternates:

   ___Assorted Cold Cuts, Eggs,
       and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #10

10. ___Fish and Chips

   ___Chicken Pot Pie (chicken
       slices, onions, celery,
       carrots, peas with sauce
       in pastry)

Alternates:

   ___Assorted Cold Cuts, Eggs,
       and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #11

11. ___Chicken Chow Mein/Rice (chicken
       slices with chinese vegetables)

   ___Veal Parmigiani (veal cutlet with
       tomato sauce)

Alternates:

   ___Assorted Cold Cuts, Eggs,
       and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #12

12. ___Wieners

   ___Spanish Noodles (ground
       beef, tomato sauce, cheese,
       noodles in casserole)

Alternates:

   ___French Onion Soup

   ___Assorted Cold Cuts, Eggs,
       and Cheese

   ___Yogurt

   ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

<u>Choice</u>

Check the item you would choose.
<u>Or</u> check the alternate you would choose.

How <u>sure</u> are you? (Circle)
1 = extremely sure
2 = moderately sure
3 = undecided
4 = moderately unsure
5 = extremely unsure

Check one:

Choice #13
13. ___Pizza Hotdish (ground beef, polish sausage, noodles, tomato sauce in casserole)

___Reuben Sandwich (corned beef, Swiss cheese, sauerkraut on rye bread)

Alternates:

___Beef Vegetable Soup

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #14
14. ___Hoagies (bologna, salami, chopped pork, tomato slice, onion ring, lettuce on bun)

___Chicken Rice Casserole

Alternates:

___Beef Noodle Soup

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #15
15. ___Hamburgers

___Deviled Egg and Cheese Plate

Alternates:

___Minestrone Soup

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #16
16. ___Batter-dipped Fish (breaded cod)

___Stuffed Green Peppers (ground beef, tomato sauce in green peppers)

Alternates:

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #17
17. ___Chili Macaroni Casserole (ground beef, tomato sauce, macaroni, seasonings in casserole)

___Egg Salad

Alternates:

___Tomato Soup

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #18
18. ___Salad Plate (apple slices, pineapple slices, purple plum, orange slices with coconut, graham crackers with butter on lettuce)

___Roast Beef

Alternates:

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

<u>Choice</u>

Check the item you would choose.
<u>Or</u> check the alternate you would choose.

How <u>sure</u> are you? (Circle)
1 = extremely sure
2 = moderately sure
3 = undecided
4 = moderately unsure
5 = extremely unsure

Check one:

Choice #25
25. ___Peppered Steak (beef cubes, gravy, green pepper)

___Shrimp Mates (breaded shrimp)

Alternates:

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #26
26. ___Meat Loaf

___Roast Pork

Alternates:

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #27
27. ___Ham and Beans

___Sloppy Joe Sandwich (ground beef in tomato sauce on bun)

Alternates:

___Chicken Rice Soup

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #28
28. ___Veal Cutlet

___Polish Sausage

Alternates:

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #29
29. ___Grilled Cheese Sandwich

___Chili

Alternates:

___Chicken Noodle Soup

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #30
30. ___Sausage Patties

___Fried Chicken

Alternates:

___Assorted Cold Cuts, Eggs, and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Choice	How sure are you? (Circle)
Check the item you would choose. Or check the alternate you would choose.	1 = extremely sure 2 = moderately sure 3 = undecided 4 = moderately unsure 5 = extremely unsure

Check one:

Choice #19
19. ___Pollock Fish Square

    ___Burritos with Chili Sauce

Alternates:

    ___Assorted Cold Cuts, Eggs, and Cheese

    ___Yogurt

    ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #20
20. ___Pizza Pattie (breaded beef pattie with mozzarella cheese)

    ___Roast Turkey

Alternates:

    ___Assorted Cold Cuts, Eggs, and Cheese

    ___Yogurt

    ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #21
21. ___8 oz. Sirloin Steak

    ___Barbequed Spare Ribs

Alternates:

    ___Assorted Cold Cuts, Eggs, and Cheese

    ___Yogurt

    ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #22
22. ___Mini Submarine (cold cuts, lettuce, tomato slice on bun)

    ___Creamed Chipped Beef/Toast

Alternates:

    ___Potato Soup

    ___Assorted Cold Cuts, Eggs, and Cheese

    ___Yogurt

    ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #23
23. ___Fish Stick Sandwich

    ___Beef Macaroni Casserole

Alternates:

    ___Beef Vegetable Soup

    ___Assorted Cold Cuts, Eggs, and Cheese

    ___Yogurt

    ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #24
24. ___Pollock Fish Square

    ___Dinner Frankfurters

Alternates:

    ___Assorted Cold Cuts, Eggs, and Cheese

    ___Yogurt

    ___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

<u>Choice</u>

How <u>sure</u> are you? (Circle)
1 = extremely sure
2 = moderately sure
3 = undecided
4 = moderately unsure
5 = extremely unsure

Check the item you would choose.
<u>Or</u> check the alternate you would choose.

Check one:

Choice #31
31. ___Hamburger Steak

___Chicken Salad

Alternates::

___Assorted Cold Cut, Eggs,
and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: I 2 3 4 5

Check one:

Choice #33
33. ___Hot Roast Beef Sandwich

___Salad Plate (sliced egg, dill
pickle slices, ham, longhorn
cheese, tomato slices)

Alternates::

___Creole Soup

___Assorted Cold Cuts, Eggs,
and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #35
35. ___Bacon, Lettuce, Tomato Sandwich

___Corned Beef Casserole

Alternates::

___Chicken Noodle Soup

___Assorted Cold Cuts, Eggs,
and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #32
32. ___Rachel Sandwich (sliced
turkey and Swiss cheese)

___Beef Noodle Casserole

Alternates:

___Chicken Vegetable Soup

___Assorted Cold Cuts, Eggs,
and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #34
34. ___Canadian Bacon Sandwich

___Macaroni and Cheese

Alternates::

___Corn Chowder Soup

___Assorted Cold Cuts, Eggs,
and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #36
36. ___Turkey Ham Sandwich

___Texas Straw Hat (ground
beef, onion, celery, green
pepper in tomato sauce over
corn chips with American
cheese and lettuce)

Alternates:

___Potato Soup

___Assorted Cold Cuts, Eggs,
and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: I 2 3 4 5

Choice | How sure are you? (Circle)

Check the item you would choose.
Or check the alternate you would choose.

1 = extremely sure
2 = moderately sure
3 = undecided
4 = moderately unsure
5 = extremely unsure

Check one:

Choice #37
37. ___Runza Beef on Bun

___Creamed Chipped Beef/Toast

Alternates:

___Chicken Noodle Soup

___Assorted Cold Cuts, Eggs,
     and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #38
38. ___Tacos

___Tuna Noodle Casserole

Alternates:

___Potato Soup

___Assorted Cold Cuts, Eggs,
     and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Check one:

Choice #39
39. ___Roast Beef

___Chef's Salad (boiled egg, ham,
     roast beef, cheese on lettuce)

Alternates:

___Assorted Cold Cuts, Eggs,
     and Cheese

___Yogurt

___Peanut Butter

How sure are you?
Circle: 1 2 3 4 5

Part II

In Part II we want to know how well you like various main dishes and alternate choices. Please mark each of the main dishes and alternates listed in the following manner. Circle 0, 1, 2, 3, 4, or 5 to indicate your like or dislike of these main dishes and alternate choices. Below is an example to assist you in completing Part II,

Example:

Choice	Circle 0, 1, 2, 3, 4, or 5					
	Have not eaten	Like a lot	Will eat	Neither like nor dislike	Do not like	Dislike a lot
	0	1	2	3	4	5
Bacon, Lettuce, Tomato Sandwich	0	①︎	2	3	4	5
Chicken Chow Mein/Chinese Noodles	0	1	2	3.	④︎	5

Explanation: ①︎ means you like bacon, lettuce, tomato sandwiches a lot. ④︎ means you do not like chicken chow mein/chinese noodles.

Choice	Circle 0, 1, 2, 3, 4, or 5					
	Have not eaten	Like a lot	Will eat	Neither like nor dislike	Do not like	Dislike a lot
	0	1	2	3	4	5
Fried Perch (fried breaded fish)	0	1	2	3	4	5
Meat Balls (ground beef, seasonings)	0	1	2	3	4	5
Hamburgers	0	1	2	3	4	5
Baked Cheese Sandwich (egg, milk, bread, and cheese custard)	0	1	2	3	4	5
Salad Plate (Pimiento cheese sandwiches, grapefruit slices, orange slices, pineapple slices, pear half, green pepper strips)	0	1	2	3	4	5
Baked Chicken	0	1	2	3	4	5
Lamb Pattie	0	1	2	3	4	5
Pizza Sandwich (ground beef, tomato sauce, seasonings)	0	1	2	3	4	5
Chicken Tetrazinni (chicken slices, white sauce, spaghetti in casserole)	0	1	2	3	4	5
Pork Cutlet	0	1	2	3	4	5
Teriyaki/Rice (beef cubes, gravy, soy-sauce on rice)	0	1	2	3	4	5
Fried Chicken	0	1	2	3	4	5
Liver and Onions	0	1	2	3	4	5
Spanish Rice (rice, onions, green pepper, ground meat in tomato sauce)	0	1	2	3	4	5
Broiled Bologna and Cheese Sandwich	0	1	2	3	4	5
8 oz. Sirloin Steak	0	1	2	3	4	5
Salad Plate (sliced egg, tomato wedges, American cheese, sliced turkey, sliced ham on lettuce)	0	1	2	3	4	5

Choice	Circle 0, 1, 2, 3, 4, or 5					
	Have not eaten	Like a lot	Will eat	Neither like nor dislike	Do not like	Dislike a lot
	0	1	2	3	4	5
Fish and Chips	0	1	2	3	4	5
Chicken Pot Pie (chicken slices, onions, celery, carrots, peas with sauce in pastry)	0	1	2	3	4.	5
Chicken Chow Mein/Rice (chicken slices with chinese vegetables)	0	1	2	3	4	5
Veal Parmigiani (veal cutlet with tomato sauce)	0	1	2	3.	4	5
Wieners	0	1	2	3	4	5
Spanish Noodles (ground beef, tomato sauce, cheese, noodles in casserole)	0	1	2	3	4	5
Pizza Hotdish (ground beef, polish sausage, noodles, tomato sauce in casserole)	0	1	2	3	4	5
Reuben Sandwich (corned beef, Swiss cheese, sauerkraut on rye bread)	0	1	2	3	4	5
Hoagies (bologna, salami, chopped pork, tomato slice, onion ring, lettuce on bun)	0	1	2	3	4	5
Chicken Rice Casserole	0	1	2	3	4	5
Deviled Egg and Cheese Plate	0	1	2	3	4	5
Batter-dipped Fish (breaded cod)	0	1	2	3	4	5
Stuffed Green Peppers (ground beef, tomato sauce in green peppers)	0	1	2	3	4	5
Chili Macaroni Casserole (ground beef, tomato sauce, macaroni, seasonings in casserole)	0	1	2	3	4	5
Egg Salad	0	1	2	3	4	5
Salad Plate (apple slices, pineapple slices, purple plum, orange slices with coconut, graham crackers with butter on lettuce)	0	1	2	3	4	5
Roast Beef	0	1	2	3	4.	5
Pollock Fish Square	0	1	2	3	4	5
Burritos with Chili Sauce	0	1	2	3	4	5
Pizza Pattie (breaded beef pattie with mozzarella cheese)	0	1	2	3	4	5
Roast Turkey	0	1	2	3	4	5
Barbequed Spare Ribs	0	1	2	3	4	5
Mini Submarine (cold cuts, lettuce, tomato slice on bun)	0	1	2	3	4	5
Creamed Chipped Beef/Toast	0	1	2	3	4	5
Fish Stick Sandwich	0	1	2	3	4	5
Beef Macaroni Casserole	0	1	2	3	4	5

Choice	Circle 0, 1, 2, 3, 4, or 5					
	Have not eaten	Like a lot	Will eat	Neither like nor dislike	Do not like	Dislike a lot
	0	1	2	3	4	5
Dinner Frankfurters	0	1	2	3	4	5
Peppered Steak (beef cubes, gravy, green pepper)	0	1	2	3	4	5
Shrimp Mates (breaded shrimp)	0	1	2	3	4	5
Meat Loaf	0	1	2	3	4	5
Roast Pork	0	1	2	3	4	5
Ham and Beans	0	1	2	3	4	5
Sloppy Joe Sandwich (ground beef in tomato sauce on bun)	0	1	2	3	4	5
Veal Cutlet	0	1	2	3	4	5
Polish Sausage	0	1	2	3	4	5
Grilled Cheese Sandwich	0	1	2	3	4	5
Chili	0	1	2	3	4	5
Sausage Patties	0	1	2	3	4	5
Hamburger Steak	0	1	2	3	4	5
Chicken Salad	0	1	2	3	4	5
Rachel Sandwich (sliced turkey and Swiss cheese)	0	1	2	3	4	5
Beef Noodle Casserole	0	1	2	3	4	5
Hot Roast Beef Sandwich	0	1	2	3	4	5
Salad Plate (sliced egg, dill pickle slices, ham, longhorn cheese, tomato slices)	0	1	2	3	4	5
Canadian Bacon Sandwich	0	1	2	3	4	5
Macaroni and Cheese	0	1	2	3	4	5
Bacon, Lettuce, Tomato Sandwich	0	1	2	3	4	5
Corned Beef Casserole	0	1	2	3	4	5
Turkey Ham Sandwich	0	1	2	3	4	5
Texas Straw Hat (ground beef, onion, celery, green pepper in tomato sauce over corn chips with American cheese and lettuce)	0	1	2	3	4	5
Runza Beef on Bun	0	1	2	3	4	5
Tacos	0	1	2	3	4	5
Tuna Noodle Casserole	0	1	2	3	4	5
Chef's Salad (boiled egg, ham, roast beef, cheese on lettuce)	0	1	2	3	4	5
Chicken Rice Soup	0	1	2	3	4	5
Beef Vegetable Soup	0	1	2	3	4	5

Choice	Circle 0, 1, 2, 3, 4, or 5					
	Have not eaten	Like a lot	Will eat	Neither like nor dislike	Do not like	Dislike a lot
	0	1	2	3	4	5
Bean Soup	0	1	2	3	4	5
Minestrone Soup	0	1	2	3	4	5
French Onion Soup	0	1	2	3	4	5
Beef Noodle Soup	0	1	2	3	4	5
Tomato Soup	0	1	2	3	4	5
Potato Soup	0	1	2	3	4	5
Chicken Noodle Soup	0	1	2	3	4	5
Chicken Vegetable Soup	0	1	2	3	4	5
Creole Soup	0	1	2	3	4	5
Corn Chowder Soup	0	1	2⁻	3	4	5
Assorted Cold Cuts, Eggs, and Cheese	0	1	2	3	4	5
Yogurt	0	1	2	3	4	5
Peanut Butter	0	1	2	3	4	5

Part III

In Part III please indicate on which day or days you would usually get a sack lunch. Check all days pertinent. If no sack lunch has ever been taken or is rarely taken, check the appropriate blank.

___No sack lunch

___Monday

___Tuesday

___Wednesday

___Thursday

___Friday

APPENDIX G

Intended Selections, Certainty of Choice, and

Preference Data for Luncheon Entrees

Students' intended choice, certainty of choice, and preference for luncheon entrees served on residence hall menus

choice no.[1]	selection	intended choice[2]		certainty of choice[3]					preference[4]					
		N	%	1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
33	hot roast beef sandwich	146	73.0	54.1	35.6	7.5	1.4	1.4	10.0	47.5	28.0	9.0	3.0	2.5
	egg, pickle, ham, cheese, tomato plate	29	14.5	69.0	24.1	3.4	3.4	0.0	22.0	34.5	23.0	10.5	8.0	2.0
	other	25	12.5	32.0	48.0	12.0	0.0	8.0						
	cold cuts	10	5.0	20.0	60.0	20.0	0.0	0.0	6.0	48.0	31.5	9.5	2.0	3.0
	yogurt	8	4.0	62.5	25.0	12.5	0.0	0.0	22.0	37.0	19.5	5.0	5.5	11.0
	peanut butter	3	1.5	0.0	66.7	0.0	0.0	33.3	14.0	33.5	26.5	13.0	4.5	8.5
	creole soup	4	2.0	25.0	50.0	0.0	0.0	25.0	62.5	4.5	9.5	9.5	8.0	6.0
37	runza beef on bun	18	9.0	27.8	22.2	22.2	11.1	11.1	63.5	2.5	7.5	10.0	7.0	9.5
	creamed chipped beef/toast	43	21.5	46.5	44.2	4.7	2.3	2.3	27.0	15.5	19.0	9.5	12.5	16.5
	other	139	69.5	41.7	39.6	13.7	3.6	1.4						
	cold cuts	56	28.0	39.3	42.9	12.5	5.4	0.0						
	yogurt	20	10.0	45.0	45.0	5.0	5.0	0.0						
	peanut butter	11	5.5	36.4	18.2	36.4	0.0	9.1						
	chicken noodle soup	52	26.0	44.2	38.5	13.5	1.9	1.9	12.0	50.5	25.5	6.5	3.0	2.5

[1]Choice number is the item number on the survey instrument. Luncheon choices are listed in chronological order of service on menus.

[2]Respondents were asked to indicate which of the items they would select if offered the choice listed.

[3] $\% = \dfrac{\text{no. responding 1, 2, 3, 4, or 5}}{\text{no. responding}}$.

[4]Respondents were asked to indicate preference for each entree; N = number selecting item 1, item 2, or alternates 3-5 for each set of entrees. Other choices, except soup, are listed only once as they are repeated in each set of selections.

Students' intended choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	intended choice		certainty of choice					preference					
				1 = extremely sure	2 = moderately sure	3 = undecided	4 = moderately unsure	5 = extremely unsure	have not eaten	like a lot	will eat	neither like nor dislike	do not like	dislike a lot
		N	%	%	%	%	%	%	%	%	%	%	%	%
36	smoked turkey ham sandwich	55	27.6	40.0	34.5	16.4	3.6	5.5	23.0	21.0	25.5	12.0	12.0	6.5
	texas straw hat	69	34.7	40.6	34.8	17.4	5.8	1.4	42.0	15.5	14.5	8.0	11.5	8.5
	other	75	37.7	40.0	49.3	6.7	4.0	0.0						
	cold cuts	35	17.6	22.9	57.1	14.3	5.7	0.0						
	yogurt	10	5.0	40.0	60.0	0.0	0.0	0.0						
	peanut butter	5	2.5	40.0	40.0	0.0	20.0	0.0						
	potato soup	25	12.6	64.0	36.0	0.0	0.0	0.0	22.5	33.0	14.0	7.5	9.5	13.5
14	hoagies	89	44.7	53.9	29.2	11.2	4.5	1.1	12.0	33.0	28.0	12.5	10.0	4.5
	chicken rice casserole	37	18.6	18.9	75.7	5.4	0.0	0.0	21.0	10.5	30.5	15.0	15.5	7.5
	other	73	36.7	41.1	47.9	9.6	0.0	1.4						
	cold cuts	26	13.1	30.8	53.8	15.4	0.0	0.0						
	yogurt	17	8.5	47.1	52.9	0.0	0.0	0.0						
	peanut butter	6	3.0	50.0	16.7	16.7	0.0	16.7						
	beef noodle soup	24	12.1	45.8	45.8	8.3	0.0	0.0	18.0	29.5	29.5	13.5	6.0	3.5
2	hamburgers	120	60.0	50.8	36.7	10.0	0.8	1.7	5.0	26.0	42.5	10.0	8.5	8.0
	baked cheese sandwich	19	9.5	36.8	36.8	21.1	5.3	0.0	43.0	6.0	12.0	13.5	15.0	10.5
	other	61	30.5	37.7	39.3	18.0	3.3	0.0						
	cold cuts	23	11.5	47.8	52.2	0.0	0.0	0.0						
	yogurt	8	4.0	37.5	50.0	12.5	0.0	0.0						
	peanut butter	5	2.5	40.0	60.0	0.0	0.0	0.0						
	chicken rice soup	25	12.5	28.0	20.0	40.0	8.0	0.0	16.0	29.0	24.5	17.0	8.5	5.0
3	hamburgers	90	45.2	44.4	36.7	14.4	3.3	1.1	5.0	26.0	42.5	10.0	8.5	8.0
	pimiento cheese, fruit plate	51	25.6	41.2	41.2	13.7	3.9	0.0	30.0	19.0	25.0	11.5	10.0	4.5
	other	58	29.2	37.9	37.9	15.5	5.2	1.7						
	cold cuts	20	10.1	45.0	30.0	10.0	10.0	5.0						
	yogurt	9	4.5	33.3	33.3	22.2	11.1	0.0						
	peanut butter	3	1.5	33.3	66.7	0.0	0.0	0.0						
	beef vegetable soup	26	13.1	34.6	42.3	19.2	0.0	0.0	13.5	34.5	29.0	11.0	9.0	3.0

Students' intended choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference have not eaten %	like a lot %	like will eat %	neither like nor dislike %	do not like %	dislike a lot %
32	rachel sandwich	98	49.0	45.9	40.8	7.1	5.1	1.0	27.0	25.5	22.0	10.5	8.5	6.5
	beef noodle casserole	34	17.0	29.4	41.2	17.6	5.9	5.9	23.0	11.5	23.5	22.5	12.5	7.0
	other	68	34.0	38.2	47.1	10.3	4.4	0.0						
	cold cuts	27	13.5	33.3	59.3	7.4	0.0	0.0						
	yogurt	13	6.5	38.5	46.2	7.7	7.7	0.0						
	peanut butter	2	1.0	50.0	0.0	0.0	50.0	0.0						
	chicken vegetable soup	26	13.0	42.3	38.5	15.4	3.8	0.0	23.0	34.0	22.5	11.5	5.5	3.5
27	ham and beans	38	19.0	42.1	26.3	18.4	5.3	5.3	22.5	14.0	18.5	13.0	19.0	13.0
	sloppy joe sandwich	87	43.5	36.8	49.4	9.2	4.6	0.0	9.0	23.5	30.0	20.5	8.5	8.5
	other	75	37.5	42.7	37.3	16.0	2.7	1.3						
	cold cuts	31	15.5	48.4	35.5	9.7	3.2	3.2						
	yogurt	12	6.0	66.7	25.0	8.3	0.0	0.0						
	peanut butter	6	3.0	50.0	33.3	16.7	0.0	0.0						
	chicken rice soup	26	13.0	23.1	46.2	26.9	3.8	0.0	16.0	29.0	24.5	17.0	8.5	5.0
34	canadian bacon sandwich	72	36.2	38.9	36.1	16.7	1.4	6.9	23.5	27.0	23.5	15.0	6.0	5.0
	macaroni and cheese	82	41.2	50.0	35.4	14.6	0.0	0.0	10.0	31.5	24.0	22.5	8.5	3.5
	other	45	22.6	55.6	24.4	11.1	6.7	2.2						
	cold cuts	26	13.1	50.0	26.9	15.4	7.7	0.0						
	yogurt	11	5.5	54.5	36.4	0.0	9.1	0.0						
	peanut butter	5	2.5	80.0	0.0	0.0	0.0	20.0						
	corn chowder soup	3	1.5	66.7	0.0	33.3	0.0	0.0	61.5	4.0	5.5	4.0	9.0	16.0
17	chili macaroni casserole	60	30.2	25.0	55.0	15.0	0.0	5.0	30.5	10.0	17.5	13.5	18.0	10.5
	egg salad	49	24.6	42.9	44.9	2.0	6.1	4.1	25.5	16.0	22.0	14.0	11.0	11.5
	other	90	45.2	45.6	28.9	22.2	1.1	2.2						
	cold cuts	34	17.1	35.3	26.5	38.2	0.0	0.0						
	yogurt	13	6.5	38.5	46.2	15.4	0.0	0.0						
	peanut butter	5	2.5	40.0	20.0	20.0	0.0	20.0						
	tomato soup	38	19.1	57.9	26.3	10.5	2.6	2.6	15.5	38.0	21.0	11.0	8.0	6.5

Students' intended choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference: have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
5	pizza sandwich	72	36.4	40.3	40.3	11.1	8.3	0.0	21.5	11.5	26.0	17.5	14.0	9.5
	chicken tetrazzini	50	25.3	30.0	46.0	22.0	2.0	0.0	30.0	11.5	20.5	16.0	13.0	9.0
	other	76	38.3	47.4	31.6	13.2	3.9	3.9						
	cold cuts	46	23.2	47.8	32.6	10.9	4.3	4.3						
	yogurt	17	8.6	52.9	23.5	17.6	5.9	0.0						
	peanut butter	4	2.0	0.0	75.0	25.0	0.0	0.0						
	bean soup	9	4.5	55.6	22.2	11.1	0.0	11.1	28.5	19.5	11.0	9.5	17.0	14.5
23	fish stick sandwich	46	23.0	37.0	37.0	10.9	8.7	6.5	20.5	13.5	24.5	15.5	12.0	14.0
	beef macaroni casserole	45	22.5	33.3	46.7	15.6	4.4	0.0	20.5	6.5	24.5	23.0	18.0	7.5
	other	109	54.5	36.7	45.0	15.6	2.8	0.0						
	cold cuts	45	22.5	35.6	48.9	15.6	0.0	0.0						
	yogurt	19	9.5	42.1	47.4	5.3	5.3	0.0						
	peanut butter	4	2.0	25.0	50.0	25.0	0.0	0.0						
	beef vegetable soup	41	20.5	36.6	39.0	19.5	4.9	0.0	13.5	34.5	29.0	11.0	9.0	3.0
35	bacon, lettuce, tomato sandwich	143	71.5	68.5	25.2	3.5	2.1	0.7	7.0	55.0	21.5	9.5	5.0	2.0
	corned beef casserole	6	3.0	33.3	50.0	16.7	0.0	0.0	32.5	4.5	10.5	20.0	18.0	14.5
	other	51	25.5	49.0	50.0	16.7	0.0	0.0						
	cold cuts	15	7.5	33.3	46.7	13.3	6.7	0.0						
	yogurt	9	4.5	44.4	55.6	0.0	0.0	0.0						
	peanut butter	5	2.5	40.0	40.0	0.0	20.0	0.0						
	chicken noodle soup	22	11.0	63.6	31.8	4.5	0.0	0.0	12.0	50.5	25.5	6.5	3.0	2.5
8	spanish rice	40	20.3	45.0	35.0	10.0	7.5	2.5	20.5	7.5	18.5	16.5	16.5	20.5
	broiled bologna and cheese sandwich	55	27.9	38.2	34.5	20.0	5.5	1.8	14.0	16.0	22.5	14.0	16.5	17.0
	other	102	51.9	38.2	37.3	15.7	6.9	1.0						
	cold cuts	47	23.9	42.6	36.2	17.0	0.0	2.1						
	yogurt	21	10.7	42.9	38.1	9.5	9.5	0.0						
	peanut butter	8	4.1	12.5	50.0	0.0	37.5	0.0						
	minestrone soup	26	13.2	34.6	34.6	23.1	7.7	0.0	35.0	21.5	17.5	10.0	9.0	7.0

Students' intended choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
38	tacos	127	63.8	59.1	31.5	5.5	0.8	3.1	10.5	44.0	27.5	8.0	6.0	4.0
	tuna noodle casserole	38	19.1	39.5	44.7	7.9	2.6	5.3	17.0	22.5	24.5	15.0	13.0	8.0
	other	34	17.0	55.9	20.6	17.6	2.9	2.9						
	cold cuts	10	5.0	50.0	50.0	0.0	0.0	0.0						
	yogurt	8	4.0	50.0	0.0	37.5	12.5	0.0						
	peanut butter	4	2.0	25.0	25.0	25.0	0.0	25.0						
	potato soup	12	6.0	75.0	8.3	16.7	0.0	0.0	22.5	33.0	14.0	7.5	9.5	13.5
15	hamburgers	103	51.8	50.5	35.0	10.7	3.9	0.0	5.0	26.0	42.5	10.0	8.5	8.0
	deviled egg, cheese plate	51	25.6	43.1	39.2	13.7	0.0	3.9	33.0	14.5	20.5	14.0	11.5	6.5
	other	45	22.6	33.3	44.4	17.8	0.0	4.4						
	cold cuts	23	11.6	34.8	34.8	21.7	0.0	8.7						
	yogurt	11	5.5	27.3	45.5	27.3	0.0	0.0						
	peanut butter	1	0.5	100.0	0.0	0.0	0.0	0.0						
	minestrone soup	10	5.0	30.0	70.0	0.0	0.0	0.0	35.0	21.5	17.5	10.0	9.0	7.0
12	wieners/buns	50	25.0	30.0	36.0	30.0	4.0	0.0	7.0	10.0	30.5	18.5	20.0	14.0
	spanish noodles	41	20.5	24.4	56.1	12.2	7.3	0.0	21.5	6.0	25.0	18.5	18.5	10.5
	other	109	54.5	41.3	38.5	13.8	1.8	4.6						
	cold cuts	51	25.5	41.2	39.2	11.8	3.9	3.9						
	yogurt	14	7.0	50.0	35.7	7.1	0.0	7.1						
	peanut butter	5	2.5	20.0	60.0	0.0	0.0	20.0						
	french onion soup	39	19.5	41.0	35.9	20.5	0.0	2.6	24.0	28.0	19.5	12.0	8.5	8.0
22	mini submarine	90	45.2	52.2	37.8	7.8	1.1	1.1	8.5	35.5	34.5	13.5	3.0	5.0
	creamed chipped beef/toast	37	18.6	48.6	37.8	5.4	5.4	2.7	27.0	15.5	19.0	9.5	12.5	16.5
	other	72	36.1	44.4	36.1	12.5	5.6	1.4						
	cold cuts	30	15.1	33.3	43.3	16.7	3.3	3.3						
	yogurt	19	9.5	47.4	36.8	10.5	5.3	0.0						
	peanut butter	4	2.0	75.0	0.0	25.0	0.0	0.0						
	potato soup	19	9.5	52.6	31.6	5.3	10.5	0.0	22.5	33.0	14.0	7.5	9.5	13.5

Students' intended choice, certainty of choice, and preference for luncheon entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
13	pizza hotdish	34	17.0	41.2	38.2	14.7	5.9	0.0	33.5	9.5	16.5	11.0	19.5	10.0
	reuben sandwich	70	35.0	41.4	42.9	11.4	2.9	1.4	9.0	24.0	24.0	9.5	16.0	17.5
	other	96	48.0	32.3	52.1	10.4	3.1	2.1						
	cold cuts	42	21.0	38.1	40.5	16.7	2.4	2.4						
	yogurt	14	7.0	42.9	42.9	7.1	7.1	0.0						
	peanut butter	2	1.0	50.0	50.0	0.0	0.0	0.0						
	beef vegetable soup	38	19.0	21.1	68.4	5.3	2.6	2.6	13.5	34.5	29.0	11.0	9.0	3.0
29	grilled cheese sandwich	77	38.7	50.6	36.4	9.1	3.9	0.0	5.5	32.5	39.5	13.0	6.5	3.0
	chili	86	43.2	50.0	39.5	7.0	1.2	2.3	11.0	38.5	27.0	12.5	6.0	5.0
	other	36	18.1	58.3	30.6	11.1	0.0	0.0						
	cold cuts	11	5.5	63.6	27.3	9.1	0.0	0.0						
	yogurt	5	2.5	80.0	20.0	0.0	0.0	0.0						
	peanut butter	-	-	-	-	-	-	-						
	chicken noodle soup	20	10.1	50.0	35.0	15.0	0.0	0.0	12.0	50.5	25.5	6.5	3.0	2.5

APPENDIX H

Intended Selections, Certainty of Choice, and

Preference Data for Dinner Entrees

Students' intended choice, certainty of choice, and preference for dinner entrees served on residence hall menus

choice no.[1]	selection	intended choice[2] N	intended choice[2] %	certainty of choice[3] 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference[4] have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
20	pizza pattie	36	18.0	44.4	41.7	8.3	5.6	0.0	20.5	16.5	23.5	15.0	13.5	11.0
	roast turkey	133	66.5	60.9	28.6	6.8	2.3	1.5	5.0	48.5	25.5	12.5	5.0	3.5
	other	31	15.5	35.5	48.4	6.5	9.7	0.0						
	cold cuts	14	7.0	57.1	42.9	0.0	0.0	0.0	6.0	48.0	31.5	9.5	2.0	3.0
	yogurt	10	5.0	20.0	60.0	10.0	10.0	0.0	22.0	37.0	19.5	5.0	5.5	11.0
	peanut butter	7	3.5	14.3	42.9	14.3	28.6	0.0	14.0	33.5	26.5	13.0	4.5	8.5
26	meat loaf	73	36.7	39.7	39.7	11.0	9.6	0.0	6.5	25.0	26.0	21.0	10.5	11.0
	roast pork	76	38.2	44.7	35.5	15.8	3.9	0.0	10.0	20.5	31.0	15.0	12.0	11.5
	other	50	25.1	42.0	48.0	10.0	0.0	0.0						
	cold cuts	35	17.6	45.7	45.7	8.6	0.0	0.0						
	yogurt	10	5.0	30.0	70.0	0.0	0.0	0.0						
	peanut butter	5	2.5	40.0	20.0	40.0	0.0	0.0						
9	8 oz. sirloin steak	182	91.0	80.2	13.2	2.7	1.1	2.7	2.0	65.5	24.5	4.0	2.0	2.0
	egg, tomato, cheese, turkey, ham plate	15	7.5	53.3	33.3	6.7	6.7	0.0	19.0	36.5	29.0	12.0	2.5	1.0
	other	3	1.5	100.0	0.0	0.0	0.0	0.0						
	cold cuts	2	1.0	100.0	0.0	0.0	0.0	0.0						
	yogurt	1	.5	100.0	0.0	0.0	0.0	0.0						
	peanut butter	-	-	-	-	-	-	-						

[1] Choice number is the item number on the survey instrument. Dinner choices are listed in chronological order of service on menus.

[2] Respondents were asked to indicate which of the items they would select if offered the choice listed.

[3] $\% = \dfrac{\text{no. responding 1, 2, 3, 4, or 5}}{\text{no. responding}}$.

[4] Respondents were asked to indicate preference for each entree; N = number selecting item 1, item 2, or alternates 3-5 for each set of entrees. Other choices are listed only once as they are repeated in each set of selections.

Students' intended choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	%	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
28	veal cutlet	50	25.1	32.0	48.0	8.0	8.0	4.0	13.0	11.0	18.5	22.0	22.0	13.5
	polish sausage	38	19.1	28.9	52.6	10.5	5.3	2.6	22.0	10.0	18.5	16.0	18.5	15.0
	other	111	55.8	40.5	43.2	12.6	2.7	0.9						
	cold cuts	70	35.2	40.0	41.4	15.7	2.9	0.0						
	yogurt	30	15.1	46.7	40.0	10.0	0.0	3.3						
	peanut butter	11	5.5	27.3	63.6	0.0	9.1	0.0						
10	fish and chips	75	37.5	49.3	36.0	12.0	0.0	2.7	19.5	22.5	25.5	12.0	12.0	8.5
	chicken pot pie	70	35.0	41.4	41.4	12.9	4.3	0.0	27.5	18.5	24.5	13.5	9.5	6.5
	other	55	27.5	43.6	40.0	14.5	0.0	1.8						
	cold cuts	31	15.5	48.4	35.5	12.9	0.0	3.2						
	yogurt	19	9.5	42.1	47.4	10.5	0.0	0.0						
	peanut butter	5	2.5	20.0	40.0	40.0	0.0	0.0						
6	pork cutlet	57	28.6	33.3	54.4	7.0	3.5	1.8	14.5	15.0	26.5	18.0	12.0	14.0
	teriyaki/rice	46	23.1	34.8	41.3	19.6	2.2	2.2	20.5	12.5	17.5	12.5	16.0	21.0
	other	96	48.3	42.7	35.4	17.7	2.1	1.0						
	cold cuts	66	33.2	40.9	33.3	21.2	3.0	1.5						
	yogurt	24	12.1	54.2	41.7	4.2	0.0	0.0						
	peanut butter	6	3.0	16.7	33.3	33.3	0.0	0.0						
19	pollock fish square	24	12.1	41.7	33.3	16.7	8.3	0.0	40.5	7.0	9.0	18.0	11.5	14.0
	burritos with chili sauce	86	43.4	45.3	38.4	12.8	2.3	1.2	14.0	23.5	17.5	19.5	15.0	10.5
	other	83	44.4	45.5	42.0	6.8	2.3	2.3						
	cold cuts	61	30.8	49.2	39.3	4.9	3.3	1.6						
	yogurt	21	10.6	33.3	52.4	14.3	0.0	0.0						
	peanut butter	6	3.0	50.0	33.3	0.0	0.0	16.7						

Students' intended choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference: have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
30	sausage patties	15	7.5	20.0	40.0	26.7	13.3	0.0	23.0	10.0	15.5	17.5	17.5	16.5
	fried chicken	126	63.3	54.0	35.7	6.3	1.6	2.4	4.5	43.5	25.0	11.5	7.0	8.5
	other	58	29.1	41.4	41.4	10.3	6.9	0.0						
	cold cuts	31	15.6	41.9	38.7	19.4	0.0	0.0						
	yogurt	19	9.5	47.4	47.4	0.0	5.3	0.0						
	peanut butter	8	4.0	25.0	37.5	0.0	37.5	0.0						
39	roast beef	127	63.5	59.1	31.5	7.1	0.0	2.4	1.5	55.0	30.0	8.0	4.0	1.5
	chef's salad	59	29.5	45.8	32.2	16.9	5.1	0.0	22.5	38.5	26.5	7.5	4.0	1.0
	other	14	7.0	50.0	42.9	7.1	0.0	0.0						
	cold cuts	9	4.5	44.4	44.4	11.1	0.0	0.0						
	yogurt	5	2.5	60.0	40.0	0.0	0.0	0.0						
	peanut butter	-	-	-	-	-	-	-						
16	batter-dipped fish	56	28.3	35.7	42.9	12.5	3.6	5.4	16.0	13.0	26.0	12.5	14.5	18.0
	stuffed green peppers	53	26.8	50.9	24.5	13.2	5.7	5.7	27.5	11.0	16.0	8.0	15.5	22.0
	other	89	44.9	43.8	39.3	11.2	3.4	2.2						
	cold cuts	60	30.3	48.3	35.0	8.3	5.0	3.3						
	yogurt	21	10.6	33.3	47.6	19.0	0.0	0.0						
	peanut butter	8	4.0	37.5	50.0	12.5	0.0	0.0						
18	graham crackers, fruit plate	25	12.6	40.0	44.0	8.0	4.0	0.0	29.5	26.0	22.0	13.5	6.5	2.5
	roast beef	157	78.9	61.1	29.9	5.1	1.9	1.9	1.5	55.0	30.0	8.0	4.0	1.5
	other	17	8.5	35.3	58.8	5.9	0.0	0.0						
	cold cuts	8	4.0	37.5	62.5	0.0	0.0	0.0						
	yogurt	7	3.5	42.9	57.1	0.0	0.0	0.0						
	peanut butter	2	1.0	0.0	50.0	50.0	0.0	0.0						

Students' intended choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
25	peppered steak	50	25.1	34.0	48.0	14.0	4.0	0.0	24.5	16.5	18.0	15.0	17.5	8.5
	shrimp mates	95	47.7	56.8	28.4	7.4	3.2	4.2	20.0	32.5	20.5	6.5	8.0	12.5
	other	54	27.1	27.8	42.6	18.5	9.3	1.9						
	cold cuts	34	17.1	35.3	35.3	17.6	11.8	0.0						
	yogurt	11	5.5	18.2	72.7	9.1	0.0	0.0						
	peanut butter	9	4.5	11.1	33.3	33.3	11.1	11.1						
4	baked chicken	133	67.2	57.9	31.6	6.0	3.0	1.5	4.5	38.0	32.0	11.0	6.5	8.0
	lamb pattie	11	5.6	9.1	81.8	9.1	0.0	0.0	31.0	7.0	10.5	11.5	18.5	21.5
	other	54	27.3	46.3	38.9	13.0	1.9	0.0						
	cold cuts	33	16.7	48.5	36.4	15.2	0.0	0.0						
	yogurt	15	7.6	46.7	46.7	6.7	0.0	0.0						
	peanut butter	6	3.0	33.3	33.3	16.7	16.7	0.0						
31	hamburger steak	98	49.2	42.9	40.8	10.2	3.1	3.1	13.5	25.0	35.5	15.5	4.0	6.5
	chicken salad	57	28.6	42.1	45.6	7.0	5.3	0.0	25.0	20.5	27.5	14.0	7.5	5.5
	other	44	22.1	43.2	43.2	13.6	0.0	0.0						
	cold cuts	26	13.1	34.6	46.2	19.2	0.0	0.0						
	yogurt	15	7.5	53.3	40.0	6.7	0.0	0.0						
	peanut butter	3	1.5	66.7	33.3	0.0	0.0	0.0						
24	pollock fish square	28	14.1	32.1	39.3	21.4	0.0	7.1	40.5	7.0	9.0	18.0	11.5	14.0
	dinner frankfurters	55	27.6	29.1	52.7	14.5	1.8	1.8	16.0	8.5	25.0	15.5	19.0	16.0
	other	116	58.3	46.6	37.9	12.1	1.7	1.7						
	cold cuts	73	36.7	45.2	34.2	16.4	2.7	1.4						
	yogurt	35	17.6	48.6	48.6	2.9	0.0	0.0						
	peanut butter	8	4.0	50.0	25.0	12.5	0.0	12.5						

Students' intended choice, certainty of choice, and preference for dinner entrees served on residence hall menus (cont.)

choice no.	selection	intended choice N	intended choice %	certainty of choice 1 = extremely sure %	2 = moderately sure %	3 = undecided %	4 = moderately unsure %	5 = extremely unsure %	preference have not eaten %	like a lot %	will eat %	neither like nor dislike %	do not like %	dislike a lot %
11	chicken chow mein/rice	62	31.2	37.1	43.5	11.3	4.8	3.2	23.5	16.0	19.0	14.0	15.0	12.5
	veal parmigiani	47	23.6	40.4	29.8	19.1	4.3	6.4	19.5	14.5	17.0	13.5	22.0	13.5
	other	90	45.3	42.2	40.0	12.2	3.3	1.1						
	cold cuts	62	31.2	46.8	37.1	12.9	3.2	0.0						
	yogurt	21	10.6	38.1	52.4	4.8	0.0	0.0						
	peanut butter	7	3.5	14.3	28.6	28.6	14.3	14.3						
21	8 oz. sirloin steak	130	65.0	72.3	16.9	5.4	3.8	1.5	2.0	65.5	24.5	4.0	2.0	2.0
	barbequed spare ribs	61	30.5	62.3	31.1	4.9	1.6	0.0	25.0	43.5	19.0	5.0	3.5	4.0
	other	9	4.5	44.4	11.1	22.2	22.2	0.0						
	cold cuts	4	2.0	50.0	25.0	0.0	25.0	0.0						
	yogurt	1	0.5	100.0	0.0	0.0	0.0	0.0						
	peanut butter	4	2.0	25.0	0.0	50.0	25.0	0.0						
7	fried chicken	130	65.3	66.2	24.6	3.8	1.5	3.8	4.5	43.5	25.0	11.5	7.0	8.5
	liver and onions	16	8.0	56.3	37.5	6.3	0.0	0.0	25.0	8.0	6.5	4.0	8.5	48.0
	other	53	26.6	58.5	20.8	15.1	1.9	3.8						
	cold cuts	34	17.1	61.8	17.6	14.7	2.9	2.9						
	yogurt	15	7.5	46.7	33.3	20.0	0.0	0.0						
	peanut butter	4	2.0	75.0	0.0	0.0	0.0	25.0						
1	fried perch	57	28.9	29.8	57.9	10.5	1.8	0.0	23.5	8.5	24.5	12.0	14.5	17.0
	meat balls	53	26.9	22.6	45.3	24.5	5.7	1.9	21.0	6.5	25.0	18.5	18.0	11.0
	other	87	44.1	33.3	54.0	10.3	1.1	1.1						
	cold cuts	55	27.9	36.4	49.1	10.9	1.8	1.8						
	yogurt	27	13.7	29.6	63.0	7.4	0.0	0.0						
	peanut butter	5	2.5	20.0	60.0	20.0	0.0	0.0						

ACTUAL AND INTENDED ENTREE SELECTIONS OF COLLEGE WOMEN
FROM RESIDENCE HALL MENUS

by

CHERYL J. WILEY

B.S., Kansas State University, 1973

_____

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Dietetics, Restaurant,
and Institutional Management

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1979

ABSTRACT

Accurate food production forecasting has become necessary as a means to control costs effectively in a foodservice operation. Consumer demand has been measured to aid in management's cost control. The purpose of this research was to compare college women students' intended entree selections from residence hall foodservice menus with actual choices from the serving line. This study was an extension of the research on forecasting production demand by Shriwise, college students' entree choices by Johnson and Vaden, and high school students' stated entree decisions by Gargano and Vaden. This study, unlike Johnson's and Gargano's, included alternate items of assorted cold cuts, eggs, and cheese, yogurt, peanut butter, and soup (provided at lunch only) as choices in addition to planned entree choices.

Specific objectives included studying entree preference, studying intended selections with degree of certainty, comparing actual choices with intended ones, and assessing usefulness of intended entree selections as a production forecasting tool. Actual choice data for entree items were collected in a women's residence hall foodservice at a large mid-western university in a four-week period excluding weekends; the number of portions for each entree item or alternate were tallied on a key tabulator and recorded on a specific form. Data were compared with results of a survey of intended preferences of a random sample of the women residing at the complex served by the foodservice. The survey instrument consisted of a listing of thirty-nine pairs of preplanned entree choices and alternates from four weeks of residence hall menus

used in collecting actual choice data and of a listing of menu items for preference description. Participants were asked to indicate which item they would select from each set of entrees and alternates, their degree of certainty for each choice, and their degree of preference (like or dislike) for each entree item. Preferences were assessed using a five-point scale from "like a lot" to "dislike a lot." Two hundred students completed the survey instrument.

Items well liked included roast beef, steak, barbequed spare ribs, chef's salad, bacon-lettuce-tomato sandwich, hot roast beef sandwich, assorted cold cuts-eggs-cheese, and chicken noodle soup. The mean preference values indicate entrees in the beef steak or cutlet, ground beef, and pork categories had neutral values except for a few items, steak, roast pork, and spare ribs which had higher values. Roast beef, fried or roast poultry, cold sandwiches, hamburger sandwich, Italian and Mexican dishes, and alternates were categories preferred over beef cutlet, ground beef, other pork, fried fish, extended main dishes, and other main dishes. Items disliked by 25 per cent or more of the respondents included casseroles and extended main dishes, pork and beef cutlets, and wieners. Many disliked items were unfamiliar to other respondents.

Mean certainty scores reflected greater certainty for items selected by greater percentages of students in thirteen luncheon choice sets. In eight instances, more respondents selected the alternates than the paired choices. Mean values were similar for paired choices and alternates that equal numbers of respondents intended to select. In most instances respondents were moderately sure of their dinner entree selection, and the certainty score was lower (indicating greater certainty) for the paired choice or alternate with the greatest percentage of intended selection.

In all instances, except two luncheon and one dinner menus, actual and intended selection behavior were not significantly related as indicated by the chi-square values. When chi-square values of the actual and intended selections were compared with overall certainty scores for each choice there was a positive relationship between the statistics (overall: $r = .48$); for luncheon choices the correlation was .38, for dinner, $r = .69$. A positive coefficient indicated higher certainty scores were associated with higher chi-square values indicating greater discrepancy between intended and actual choices.

Intended choices are indicators of more popular items and could be used for planning menus acceptable to students. However, intended choices are not sufficiently accurate as a predictor for production demand.